ITC

INSTRUCTIONS MANUAL FOR DM-516H

昭和　　年　　月

Ikegami

池上通信機株式會社

SPECIFICATION

FOR

DM-516H

19"V High Resolution B/W

CRT Monitor

1. GENERAL DESCRIPTION

A. Open frame rackmount construction.

B. 19V chassis is provided with bezel in rackmount configuration. Rackmount slide hardware is a Jonathan Manufacturing Corporation, Model 110QD-18-B, chassis section, and 110QD-18-A2, cabinet section, 1101 S. Acacia Avenue, P.O. Box 3-J, Fullerton, CA 92634.

C. Power switch and brightness control is mounted on the front panel.

D. Monitor is provided with a grounded power connector and a 2.4 meter power cord.

E. The chassis ground and circuit ground is separate and the DC leakage path (R/C) is by a parallel 20K ohms resistor (1/2 watt) and a 0.33 ufd (630 VW) capacitor.

F. Phosphor type: P-4

2. POWER REQUIREMENTS

A. Voltage - Selectable, single phase

100V ±10%
120V ±10%
220V ±10%
240V ±10%

B. Frequency: 47 to 66 Hz

C. The power line voltage selector uses SHOWA MUSEN model SI-7721-09 (100/120/220/240V) or equivalent.

D. Power Consumption
220 VA max. at 20 ft. Lambert.

E. Brightness
Nominal: 25 ft. Lambert.

3. VIDEO AMPLIFIERS

A. Video Signal Inputs

1. Video input connectors is BNC.
2. The input is bridged.
3. Video input is switch selectable for Hi/Lo (75 ohms) impedence.
4. All BNC connectors is insulated from chassis ground.

B. Video Amplifier Sensitivity

1. The video input signals is referenced white-positive and have negative going composite sync added (EIA Standard RS343A). See diagram (attachment #1) for sync signal characteristics.

   a. Composite sync on video is the basic sync input design.

   b. Separate composite sync in addition to composite sync with video, with proper switching and termination is provided. BNC connectors are used.

   c. Space for separate H and V is provided.

2. Video input signal level is 1 V p-p measured from sync tip to reference white level. On a 140% scale, the signal make-up is as follows:

   Pedestal level = 0%
   Reference Black = +7.5%
   Reference White = +100%
   Sync =-40%

3. The video amplifier is of the AC coupled analog response type. DC restoration is provided.
4. Brightness control for the video channel is provided. This brightness adjustment is designed such that 15 brightness steps plus black can be produced at all settings of the brightness control. This brightness control is an operator control. The brightness control is mounted on the front panel.

C. Video Amplifier Frequency Response.

1. Video Bandwidth: 40MHz +1/-3db
2. Rise and fall (decay) time (pulse): less than 13 nanoseconds
3. Video Pulse width: 25 nanosecond minimum
4. Ringing, preshoot and/or overshoot.
   a. Overshoot/Ringing: less than 10%
   b. SAG: Less than 5% with 60 hertz square wave.

4. VERTICAL SYNC AND DEFLECTION CIRCUIT

A. Vertical Frequency, 60 Hz

B. Vertical Sync and Blanking (input signal)
Refor to attachment # 1

C. Vertical Retrace Time, 600 microseconds max.

D. Vertical Height Control. Four corners points in normal scan to -20% underscan and +10% overscan.

E. Interlace/Non-Interlace
The monitor accepts either interlaced or non-interlaced video signal for presentation.

5. THE HORIZONTAL SYNC AND DEFLECTION CIRCUIT

A. Frequency, 32.28 KHz

B. Horizontal Sync Pulse (Input Signal)
Refer to attachment #1

C Horizontal Retrace Time
6.0 microseconds maximum

D. Horizontal Blanking (Input Signal)
Refer to attachment # 1

E. Width Control
Four corners or points in normal scan to -15% underscan and +10% overscan.

F. Centering
Controls permits recentering of the image ±5% from the raster center with a total overall control of 14%. This control works as horizontal phasing.

6. HIGH VOLTAGE AND FOCUS SUPPLY

A. High Voltage Regulation

The high voltage requlation does exceed ±2% for a beam current variation from 0 to 300 microamperes. This results in less than ±5% variation in the display image.

B. Current/Voltage Limitor

DHHS regulation on X-Ray radiation specification [0.5 mr/hr(max)] is met.

C. Deflection Circuit Design

Appropriate safeguards are incorporated in the design to prevent CRT and/or phosphor damage in case of deflection circuit failure.

7. DISPLAY STABILITY AND ACCURACY

A. Long Term Display Stability

The horizontal and vertical change is display size due to long term operating temperature changes and slow powerline variation are as follows: At rated voltage of 120 volts, the edge does not deviate more than 5% absolute of nominal from center and no more than 5% absolute overall over the operating temperature range. At 25°C ambient temperature, the edges do not deviate more than 4% absolute of nominal from center and no more than 4% absolute overall over the power line variation of ±10% of nominal rated voltage of 120V. The center and aspect ratio is remain constant. (See attachment #2.)

B. Short Term Picture Stability

Raster size variation from 10% black to 90% white (100% APL) is 1% overall or less. High voltage requlation of ±2% for a beam current of 0-300 microamperes with 150 microamperes as nominal white.

C. Focus Stability

Maximum focus stability is insured from full black to full white.

D. Linearity/Geometry

Linearity and geometry are better than 2% overall using the Ball chart (EIA) or equivalent.

E. Fluctuation

Less than 0.2mm in case of less than 3% of power input waveform distortion under such environment as there is no influence by external magnetic field except terrestial magnetism.

8. ENVIRONMENTAL

A. Operating Temperature

0° to 50° C ambient for open frame model.

B. Non-operating Temperature

-25° C to +70° C.

C. Humidity

5% to 90% relative humidity, non-condensing.

D. Altitude (Operational)

Sea level to 10,000 ft. elevation.

E. Physical size

Width: 19" rackmount with slides

Height: 17 1/2"

Depth: 20"

9. SAFETY REQUIREMENT

A. DHHS

This unit complies with DHHS rules.

B. U.L.

UL requirements will be met.

C. C.S.A.

C.S.A. requirements compatible with U.L. will be met.

D. Printed Circuit Board

U.L. approved material which is non flame supporting is used.

E. Reliability (estimate)

More than MTBF 7,000H (at TA=25°C and K=1)

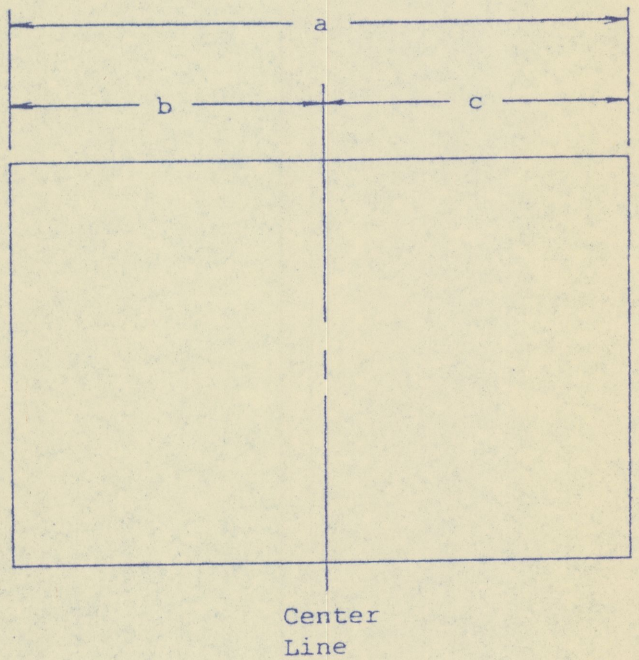
F. CRT Life

Expected Life	10,000H
Guarantee Life	3,000H

10. CONDITION OF SET UP AND INSPECTION

Sample sets are inspected and adjusted according to the reference time chart as per attached (See attachment #1).

ATTACHMENT #2



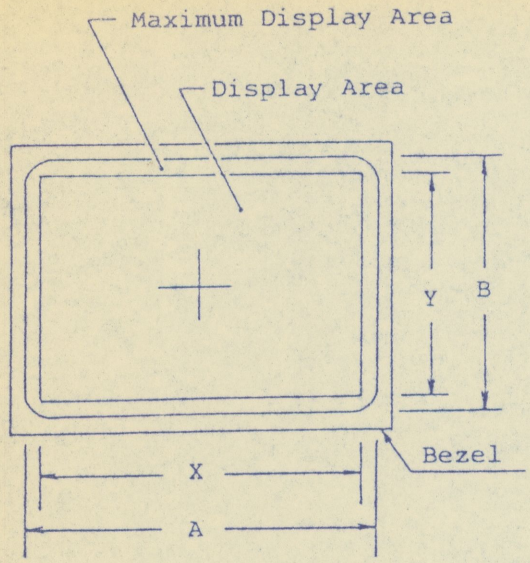
$$\frac{\left|\frac{a}{2}-b\right| + \left|\frac{a}{2}-c\right|}{a} \times 100\% \leq 4\%$$

LONG TERM DISPLAY STABILITY CRITERIA

	CRT DISPLAY UNIT MODEL DM-516H
	LONG TERM DISPLAY STABILITY CRITERIA

ATTACHMENT #1

1. Display Area



	A	B	X	Y
DM-516H	400mm	300mm	340mm	250mm

NOTES

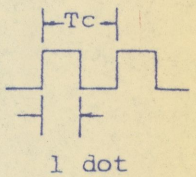
1. Scanning Freq.

f_H = 32.28 KHz, f_V = 60 Hz

2. Clock Freq. & Dot Pulse Width

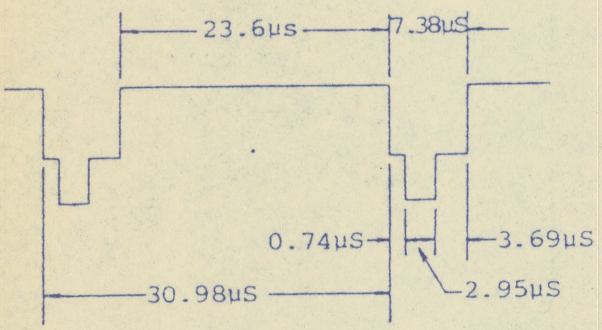
$f_C = \frac{1}{Tc}$ = ____ MHz

1 dot = ____ nS

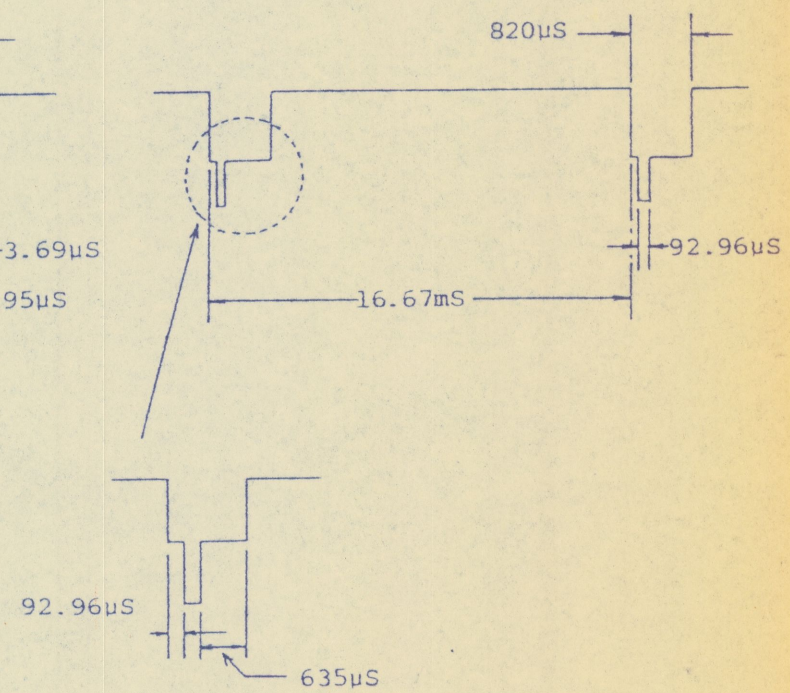


2. Time Chart

-1) Horiz. (1H)



-2) Vert. (1V)



CRT DISPLAY UNIT MODEL DM-516H
DISPLAY AREA AND TIME CHART

	A	B	X	Y
DM-5185	400mm	300mm	240mm	230mm

OPERATION MANUAL

FOR

MODEL DM516H DISPLAY MONITOR

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*	Deflection Drive Board	C11-901625
*	Deflection Unit	C21-901614
*	Main Chassis	C21-901615
*	External View	K3-902123

1. Setting

Install cables to the display monitor unit as shown in Fig. 1.

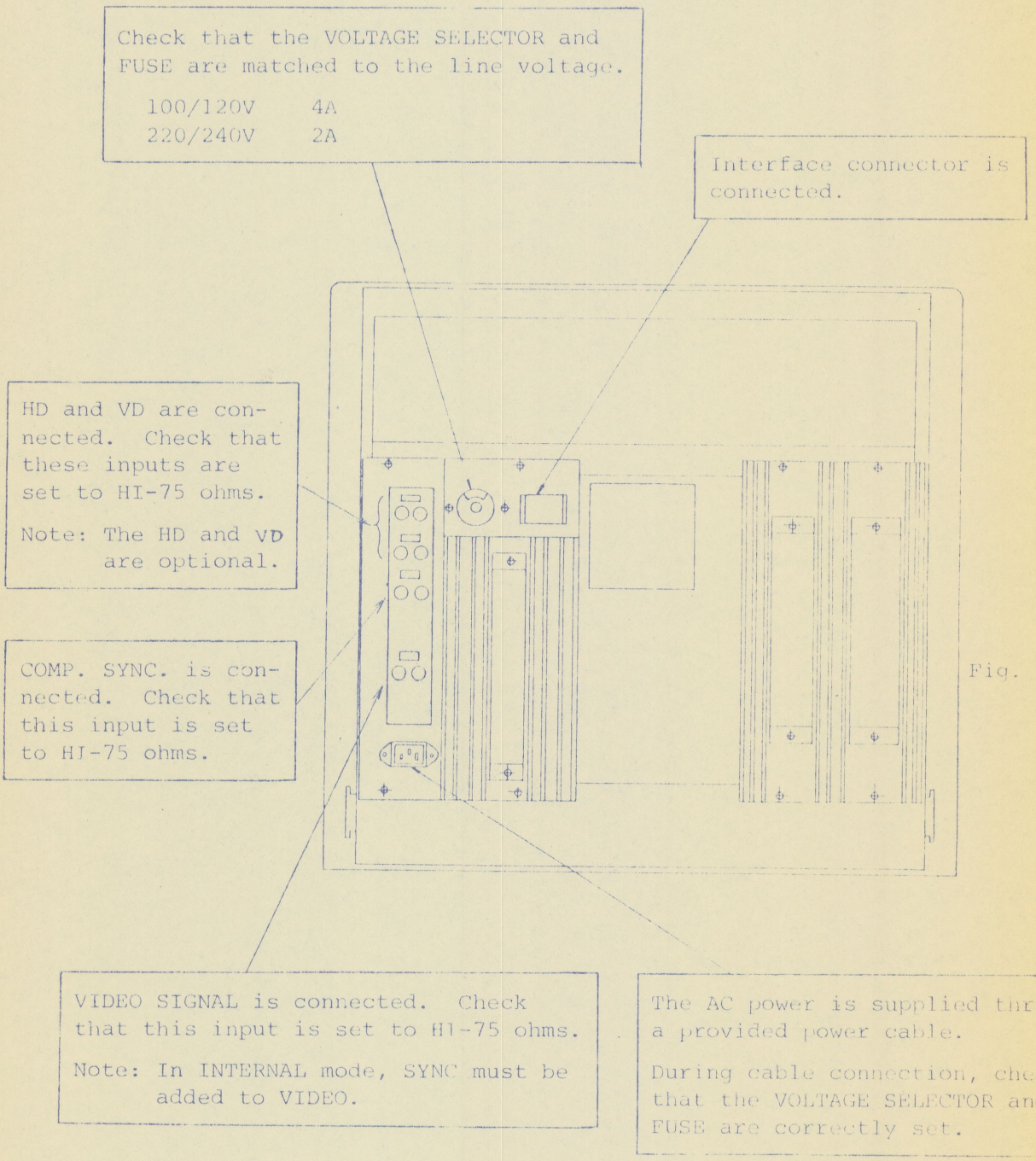
Check that the VOLTAGE SELECTOR and FUSE are matched to the line voltage.
100/120V 4A
220/240V 2A
Interface connector is connected.
HD and VD are connected. Check that these inputs are set to HI-75 ohms.
Note: The HD and VD are optional.
COMP. SYNC. is connected. Check that this input is set to HI-75 ohms.
VIDEO SIGNAL is connected. Check that this input is set to HI-75 ohms.
Note: In INTERNAL mode, SYNC must be added to VIDEO.
The AC power is supplied through a provided power cable.
During cable connection, check that the VOLTAGE SELECTOR and FUSE are correctly set.

Fig. 1

Notes: 1. When connecting the SYNC to the VIDEO, change the SYNC SELECT in VIDEO AMP & SYNC PROCE BOARD to INT position. The SYNC SELECT must be at the EXT position for the COMP SYNC.

2. When HD and VD are used, change switch S1 on the VIDEO AMP & SYNC PROCE BOARD to the SEPA position. This switch must be set to the COMP position when using the COMP SYNC.

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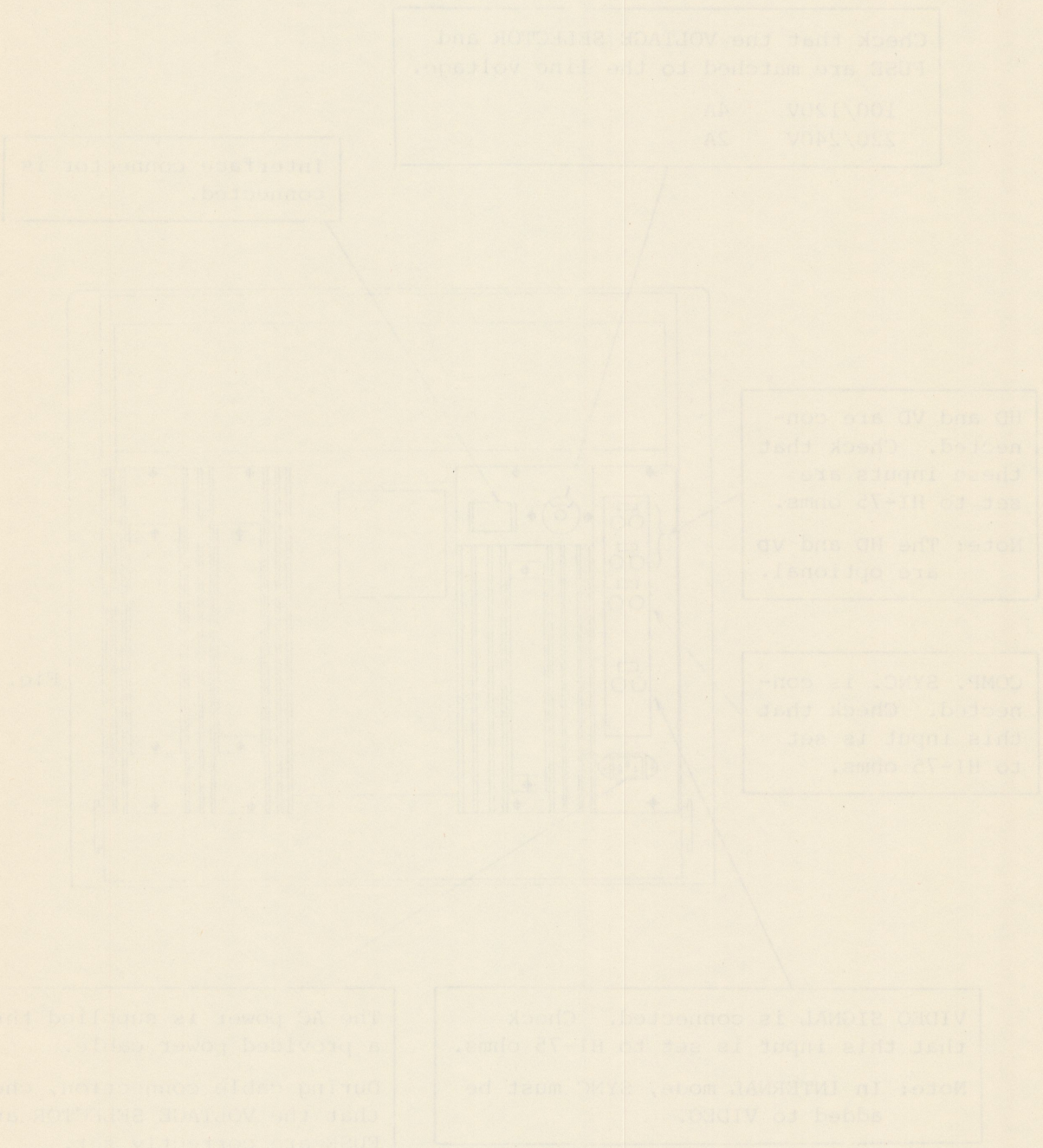

2. Composition

(1) Front view

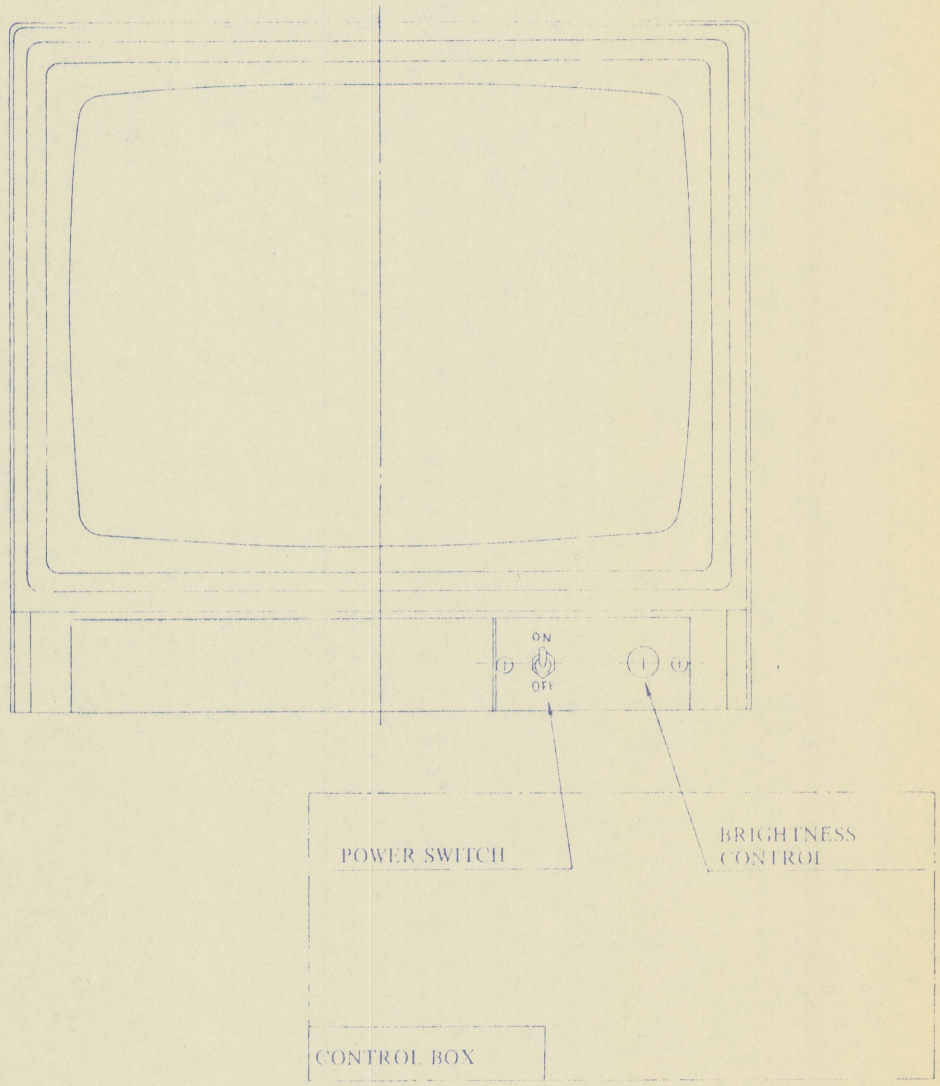

Fig. 2

(2) Layout of units

The units are installed on the right and left sides of the display monitor. Insertion/removal of units is effected from the rear of the display monitor.

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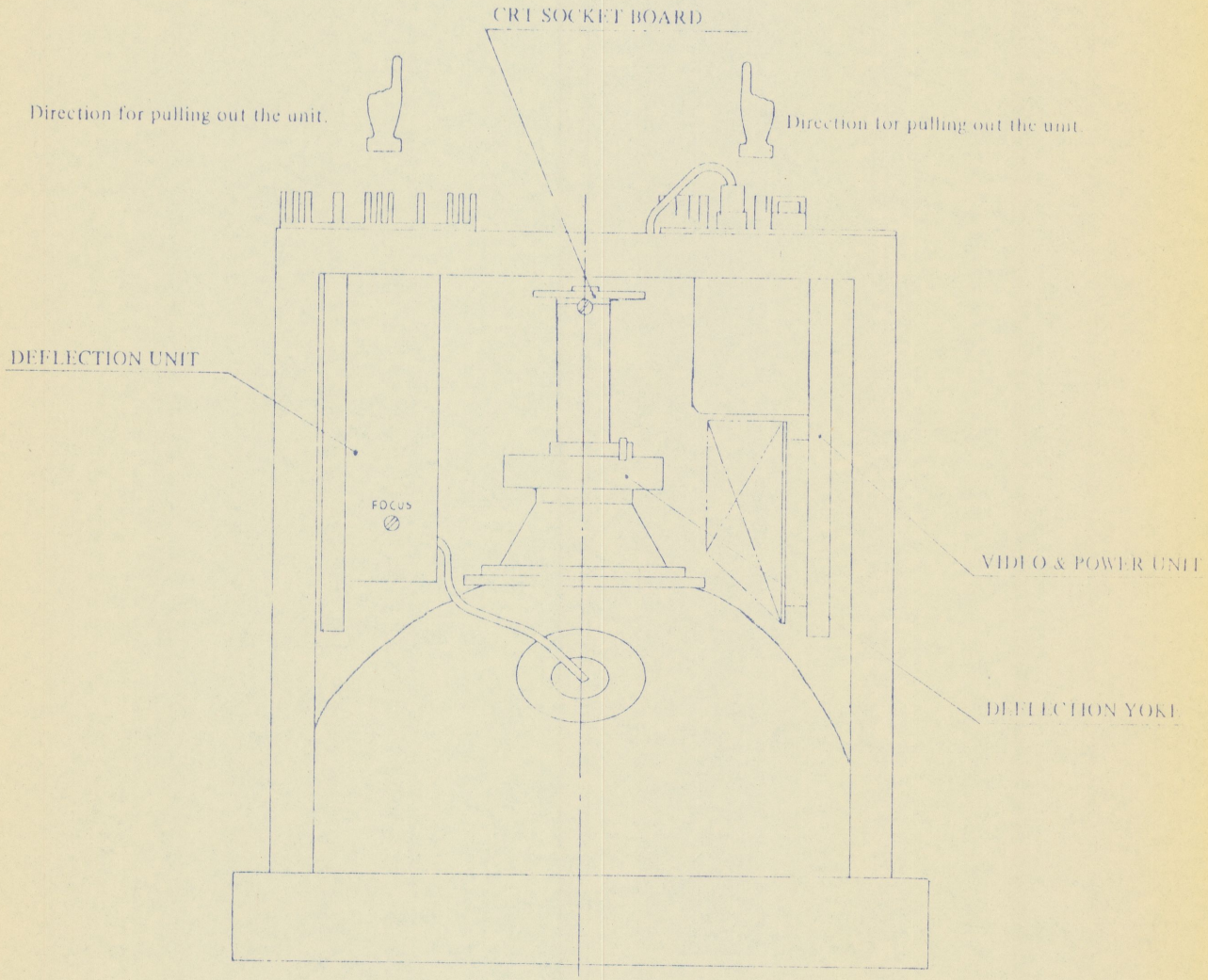

Fig. 3 TOP VIEW

(3) Layout of printed circuit boards

Six printed circuit boards are used in these units, as listed below:

a. VIDEO & POWER UNIT
   -1- VIDEO AMP & SYNC PROCESS BOARD
   -2- POWER BOARD
   -3- VIDEO INPUT BOARD

b. DEFLECTION UNIT
   -4- DEFLECTION DRIVE BOARD
   -5- DEFLECTION SUB-BOARD

C. MAIN CHASSIS
   -6- CRT SOCKET BOARD

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3. Preventive maintenance

Preventive maintenance of the display monitor should consist of an operating check, noticing particularly that the image fills the screen, and the images are in focus. Such checks ensure the display monitor is holding its alignment and particularly the low and high voltage supplies, and diflection circuits are operating normally. Check for loose hardware on the front panel switches, and that the brightness control operates correctly. Remove dust from the exterior surfaces and properly clean the face of the CRT. Power should be "OFF" when performing preventive maintenance.

CAUTION

Seemingly minor adjustments may require a complete re-alignment of the display monitor.

Preventive maintenance schedules for the display monitor may be safely limited to that of associated equipment in the system. When performing PMs on other equipment, do the PM on the display monitor. The unit is capable of operating over long periods of time without maintenance. If a definite PM schedule is required, specify 90-day intervals. During such time, other equipment will probably require maintenance and the display monitor should be PM'd at the same time. The next PM will be 90-days from that date.

4. General adjustments

Under normal operating conditions, the specified performance of the display monitor can be obtained by operating the controls located on the front of the display monitor as shown in Fig. 4.

When the specified performance is not obtainable, refer to item 5, Maintenance adjustments.

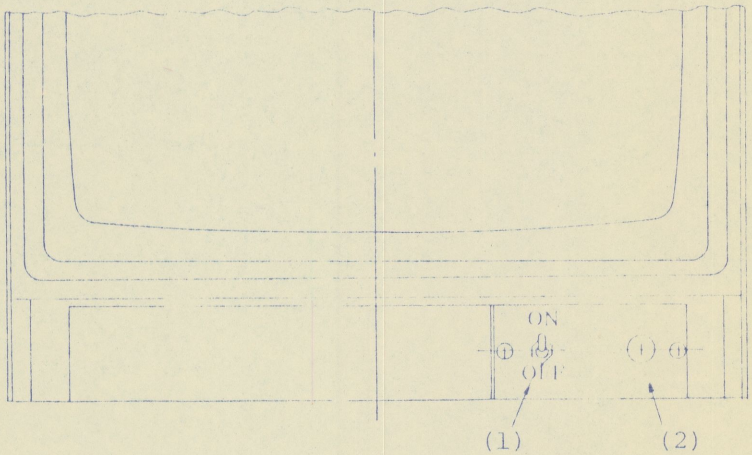

Fig. 4 Adjustments of Front Controls

(1) Power switch

* POWER ON with the lever set at the UP position.

(2) BRIGHTNESS CONTROL

* Controls brightness of picture.

* Normally, this control should be set at the Preset position. When required, picture brightness may be manually adjusted by turning the knob clockwise.

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5. Maintenance adjustments

When it is no longer possible to obtain the specified performance with daily adjustment alone, or when a part or parts have been replaced because of repairs and when adjustment becomes necessary, perform the following maintenance adjustments.

CAUTION: THE VOLTAGES EMPLOYED IN THIS EQUIPMENT ARE SUFFICIENTLY HIGH TO ENDANGER LIFE.

CONFIRM THAT POWER IS OFF AND CAPACITORS ARE DISCHARGED BEFORE TOUCHING ANY COMPONENTS.

(1) Adjusting the Video Amp & Sync Process Board

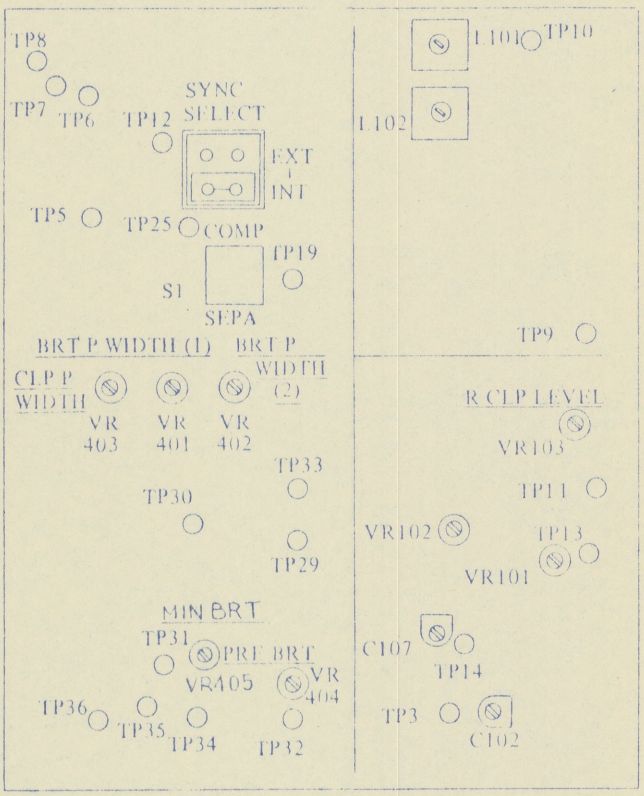

Fig. 5 Controls and test points arrangement

-1- Adjusting the BRT PULSE WIDTH

VIDEO signal with SYNC signal, or an EXT SYNC signal, is supplied to the VIDEO input, and the SYNC SELECT is set at the INT (for VIDEO signal) or at the EXT (for EXT. SYNC signal) position.

a. Connect the probe of a CRT oscilloscope (1μs/div.) to TP33.

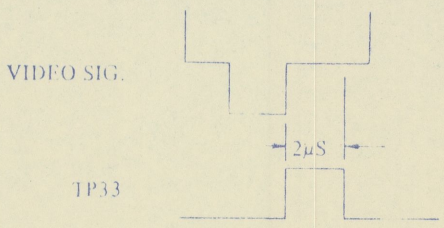

Fig. 6

b. Adjust BRT P WIDTH control to set the signal pulse width to approximately 2μs.

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b. Connect the probe to pin 9 of IC401, and fine-adjust the BRT P WIDTH (2) to set the displayed pulse width to approximately 25μs (at sweep rate of 5μs/div.).

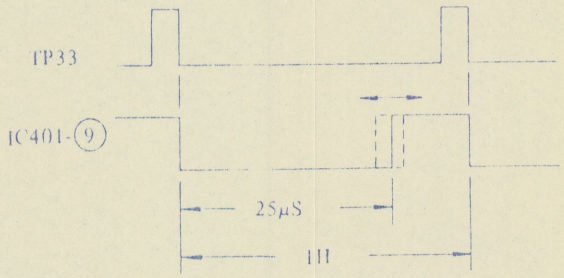

Fig. 7

Repeat adjustments a. and b. above two or three times.

-2- Adjusting the BRT P LEVEL

a. Change the probe connection to TP29 (at 5μs/div.) and set the BRIGHTNESS control at the PRESET position.

b. Adjust the PRE BRT control to set the pulse level at the pedestal level.

c. Turn the BRIGHTNESS control clockwise from the PRESET position and check that the pulse level can be changed from approximately -0.5Vp-p to +1.5Vp-p within the adjustment range of BRIGHTNESS control. Return the control to the PRESET position.

-3- Adjusting the CLP P WIDTH

a. Connect the probe of an oscilloscope (1μs/div.) to TP30.

b. Adjust the CLP P WIDTH control until the pulse width displayed is set to approximately 1.5μs.

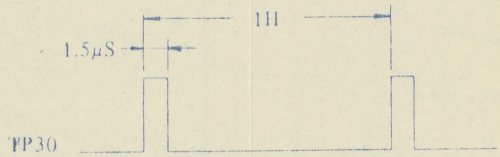

Fig. 8

-4- Adjusting the VIDEO CLAMP LEVEL

* Bandwidth of the CRT oscilloscope must be extended above 100MHz.

a. Connect the probe of an oscilloscope (5μs/div.) to TP11 and check that the signal pulse in item -3-, above, is displayed.

b. Change the probe connection to TP10 and the oscilloscope settings to H: 5μs/div. and V: 2V/div. and mode DC.

c. Adjust the CLP LEVEL control to set the pedestal level to approximately 95V DC.

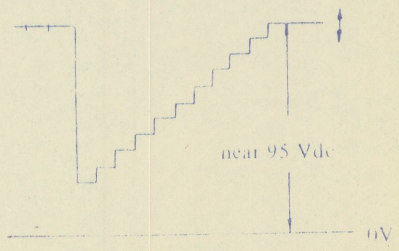

Fig. 9

-5- Adjusting the Video Frequency Response

A wide-band Sweep Generator (bandwidth extended above 100MHz), a corresponding BL Mixer and an oscilloscope are required for this adjustment. This adjustment is not required except when parts of the VIDEO AMP unit have been replaced.

a. Disconnect a connector from the VIDEO AMP output, and connect the probe (100:1) of an oscilloscope (H: 2ms/div., V: 50mV/div.) to TP10.

b. Repeat fine adjustment of C102, C107, L101, and L102 until optimum characteristics are obtained in the low, medium, and high frequency regions.

c. Upon completion of adjustment, item b. above, replace the VIDEO AMP output connector.

-6- Adjusting the Video Amp. Output Level

a. Connect the probe of an oscilloscope (H: 5us/div., V: 2V/div., mode: DC) to TP10.

b. As the video level differs depending on phosphor kinds, adjust the VR102 as the following Table 1.

PHOSPHOR	P4	P43, P45	P39, P40
VIDEO LEVEL	13Vp-p	15Vp-p	20Vp-p

Table 1

-7- Adjusting the MIN BRT LEVEL

a. Connect the probe of CRT oscilloscope (H: 5μs/div., V: 5V/div.) to TP10.

b. Remove the BRIGHTNESS VR from PRESET level and minimize.

c. Adjust and set the MIN BRT VR (VR405) so that the BRT PULSE level is same as the VIDEO level.

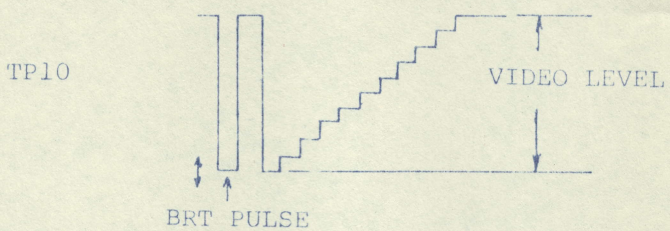

Fig. 10 (b)

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(2) Adjusting the Power Board

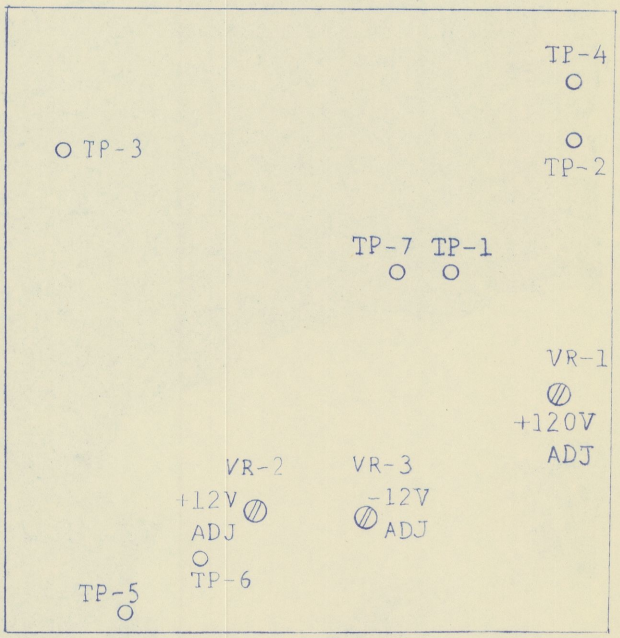

Fig. 11 Controls and test points arrangement

Any measuring instrument such as a DC voltmeter (analog or digital) or CRT oscilloscope may be used for voltage measurement, as long as the instrument can measure -20V to +150V DC.

-1- +120V adjustment

a. Connect test prongs to TP1 (+) and TP2 (-).

b. Adjust +120V ADJ. (VR1) to set the measured level to +120V.

-2- +12V adjustment

a. Connect test prongs to TP5 (+) and TP6 (-).

b. Adjust the +12V ADJ. (VR2) to set the measured level to +12V.

-3- -12V adjustment

a. Connect test prongs to TP7 (+) and TP6 (-).

b. Adjust the -12V ADJ. (VR3) to set the measured level to -12V.

-4- 6.3V (heater voltage) check

* The CRT oscilloscope cannot be used for this check.

* Connect the probe of an AC voltmeter (analog or digital) to TP3 and TP4 to check that approximately 6.3V is read.

(3) Adjusting the Deflection Drive Board

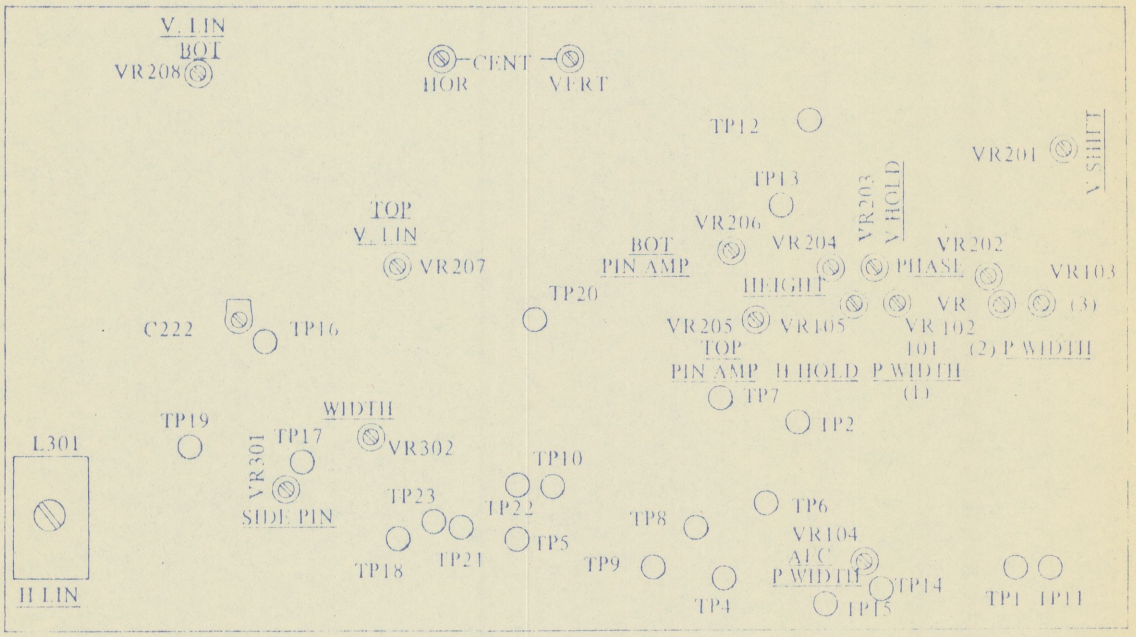

Fig. 12 Controls and test points arrangement

-1- Adjusting the H HOLD. (This adjustment is required when the horizontal synchronization frequency is switched, or when firm horizontal synchronization of the picture has been lost.)

a. Disconnect the SYNC SELECT connector from the VIDEO AMP & SYNC PROCE Board.

b. Adjust H HOLD control (VR105) until the pattern shown in Fig. 13 (III) is obtained, even though it is not synchronized firmly.

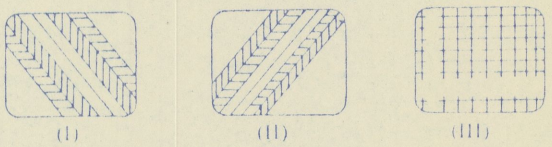

Fig. 13 Patterns at crosshatch signal input.

* When the pattern is as shown in Fig. 13 (I), turn the H HOLD control clockwise; if it is as shown in Fig. 13 (II), turn the control counterclockwise.

-2- Adjusting the AFC P WIDTH

a. Upon completion of H HOLD adjustment, above, connect the probe of a CRT oscilloscope (10μs/div.) to TP3.

b. Adjust the AFC P WIDTH control (VR104) until the duty ratio of displayed signal is set to 50%.

c. Repeat adjustment of the H HOLD and AFC P WIDTH two or three times, since these adjustments are correlated with each other.

d. Upon completion of adjustment, set the SYNC SELECT of the VIDEO AMP & SYNC PROCE BOARD to the INT or EXT position, in accordance with the horizontal synchronization signal used for the Color Monitor.

-3- Adjusting the P WIDTH (3)

a. Connect the probe of a CRT oscilloscope (5μs/div.) to TP2.

b. Adjust the P WIDTH (3) control (VR103) until the duty ratio of the displayed signal is set to 50%.

-4- Adjusting the P WIDTH (1)

Supply a crosshatch signal to the VIDEO input, and adjust the P WIDTH (1) control (VR101) until the pattern comes to the center of the viewing area.

-5- Adjusting the P WIDTH (2)

a. Connect the probe of a CRT oscilloscope (10us/div.) to TP5.

b. Adjust the P WIDTH (2) control (VR102) until the duty ratio of the displayed signal is set to 50%.

-6- Adjusting the V HOLD. (This adjustment is required when the vertical synchronization frequency is changed or when firm vertical synchronization of the picture has been lost.)

-7- Adjusting the V SHIFT and PHASE

a. Supply a crosshatch signal to the VIDEO input.

b. Connect the probe of a CRT oscilloscope (5ms/div.) to pin 9 of IC201.

c. Adjust the V SHIFT (VR201) and the PHASE (VR202) controls so that the pulse width relation shown in Fig. 14 will be approximately obtained.

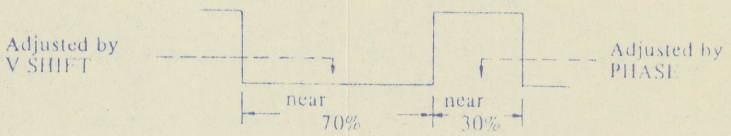

Fig. 14

d. Fine-adjust the PHASE control (VR202) until the pattern is displayed at the center of the viewing area.

-8- Adjusting the HEIGHT

a. Supply a crosshatch signal to the VIDEO input.

b. Fine-adjust the HEIGHT control (VR204) until the picture height is set at 9.84" (250mm).

-9- Adjusting the WIDTH

a. Supply a crosshatch signal to the VIDEO input.

b. Adjust the WIDTH control (VR302) until the picture width is set at 13.38" (340mm).

-10- Adjusting the H CENT and V CENT

Adjust the H CENT (horizontal) and the V CENT (vertical) controls until the raster is correctly centered in the viewing area.

-11- Adjusting the TOP/BOTTOM PINCUSHION

a. Supply a crosshatch signal to the VIDEO input.

b. Fine-adjust the trimmer capacitor (C222) until warping of picture horizontal edges is centered, as shown in Fig. 15-(I).

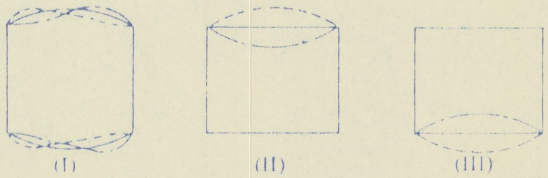

Fig. 15

c. Adjust the TOP PIN AMP control (VR205) to flatten the top edge of the picture as shown in Fig. 15-(II).

d. Adjust the PIN AMP control (VR206) until the bottom edge of the picture is flattened as shown in Fig. 15-(III).

-12- Adjusting the SIDE PIN

a. Supply a crosshatch signal to the VIDEO input.

b. Adjust the SIDE PIN control (VR301) until the vertical edges of the picture are flattened as shown by the thick lines in Fig. 16.

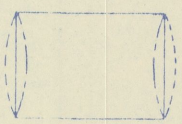

Fig. 16

-13- Adjusting the H LIN

Observe the vertical lines of the crosshatch pattern displayed, and fine-adjust the H LIN (L301) until spacing of the vertical lines is uniformly distributed on the side and at the center of the viewing area.

-14- Adjusting the TOP/BOTTOM V LIN

a. Observe the horizontal lines of displayed crosshatch pattern, and adjust the TOP V LIN control (VR207) until horizontal lines at the upper part of the viewing area are uniformly spaced.

b. Observe the horizontal lines at the lower part of the display area, and adjust the BOT V LIN control (VR208) until uniform spacing is obtained from these horizontal lines.

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(4) Adjusting the Deflection Subboard

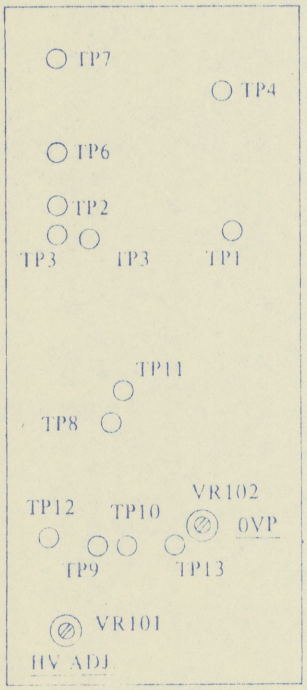

Fig. 17 Controls and test points arrangement

-1- Adjusting the HV ADJ.

Notes:

1. This adjustment is required only when the Deflection Unit or the CRT is replaced.
2. An electrostatic Voltmeter is required for this adjustment.

a. Turn the POWER switch OFF before connecting the electrostatic voltmeter to the anode of the CRT.

b. Turn the POWER switch ON and set the BRIGHTNESS control to the RPESET position.

c. Adjust the HV ADJ. control (VR101) until the voltmeter reads 18kV.

-2- Adjusting the OVP

The OVP (VR102) is adjusted at the factory. Do NOT manipulate this control unnecessarily.

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CRT DISPLAY UNIT MODEL DM-516H

Note. Marked by ※ is for adjusting

1. VIDEO AMP & SYNK PROCE BOARD

SYM	PARTS	DESCRIPTION
IC101	Integrated Circuit	μA741HC/LM741CH
IC401	Integrated Circuit	MC14528BCP
IC402	Integrated Circuit	MC14528BCP
IC403	Integrated Circuit	MM74C00/TC7400BP
IC404	Integrated Circuit	MC1496N
TR101	Transistor	2SA711
TR102	Transistor	2SC1260
TR103	Transistor	2SA711
TR104	Transistor	2SA711
TR105	Transistor	2SA711
TR106	Transistor	2SC1260
TR107	Transistor	2SC1260
TR108	Transistor	2SC1252
TR109	TRansistor	2SC1217
TR110	Transistor	2SC1217
TR111	Transistor	2SC1260
TR401	Transistor	2SC1815
TR402	Transistor	2SC1834
TR403	Transistor	2SC1834
TR404	Transistor	2SC1834
TR405	Transistor	2SC1815Y
TR406	Transistor	2SA1015Y
TR407	Transistor	2SC1815Y
TR408	Transistor	2SC1815Y
TR409	Transistor	2SA1015Y
TR410	Transistor	2SC1815Y
TR411	Transistor	2SA1015Y
TR412	Transistor	2SC1815Y
D101	Diode	1S953
D102	Diode	1S953
L101	Peaking Coil	ST-9397
L102	Peaking Coil	ST-9396
VR101	Variable Resistor(Cermet Type)	GFP-061 5K ohm B
VR102	Variable Resistor(Cermet Type)	GFP-061 500 ohm B
VR103	Variable Resistor(Cermet Type)	GFP-061 5K ohm B
VR401	Variable Resistor(Cermet Type)	GFP-061 5K ohmB
VR402	Variable Resistor(Cermet Type)	GFP-061 20K ohm B
VR403	Variable Resistor(Cermet Type)	GFP-061 5K ohm B
VR404	Variable Resistor(Cermet Type)	GFP-061 5K ohm B
VR405	Variable Resistor(Cermet Type)	GFP-061 5K ohm B

SYM	PARTS	DESCRIPTION
R101	Fixed Metal Film Resistor	RE35YQ 10K ohm F (1/4W 10K ohm)
R102	Fixed Metal Film Resistor	RE35YQ 1K ohm F (1/4W 1K ohm)
R103	Fixed Metal Film Resistor	RE35YQ 56K ohm F (1/4W 56K ohm)
R104	Fixed Metal Film Resistor	RE35YQ 4.7K ohm F (1/4W 4.7K ohm)
R105	Fixed Metal Film Resistor	RE35YQ 1K ohm F (1/4W 1K ohm)
R106	Fixed Metal Film Resistor	RE35YQ 4.7K ohm F (1/4W 4.7K ohm)
R107	Fixed Metal Film Resistor	RE35YQ 1K ohm F (1/4W 1K ohm)
R108	Fixed Metal Film Resistor	RE35YQ 6.2K ohm F (1/4W 6.2K ohm)
R109	Fixed Metal Film Resistor	RE35YQ 4.7K ohm F (1/4W 4.7K ohm)
R110	Fixed Metal Film Resistor	RE35YQ 100 ohm F (1/4W 100 ohm)
R111	Fixed Metal Film Resistor	RE35YQ 1K ohm F (1/4W 1K ohm)
R112	Fixed Metal Film Resistor	RE35YQ 3K ohm F (1/4W 3K ohm)
R113	Fixed Metal Film Resistor	RE35YQ 10K ohm F (1/4W 10K ohm)
R114	Fixed Metal Film Resistor	RE35YQ 100 ohm F (1/4W 100 ohm)
R115	Fixed Metal Film Resistor	RE35YQ 330 ohm F (1/4W 330 ohm)
R116	Fixed Metal Film Resistor	RE35YQ 10K ohm F (1/4W 10K ohm)
R117	Fixed Metal Film Resistor	RE35YQ 510 ohm F (1/4W 510 ohm)
R118	Fixed Metal Film Resistor	RE35YQ 24K ohm F (1/4W 24K ohm)
R119	Fixed Metal Film Resistor	RE35YQ 2.4K ohm F (1/4W 2.4K ohm)
R120	Fixed Metal Film Resistor	RE35YQ 1.8K ohm F (1/4W 1.8K ohm)
R121	Fixed Metal Film Resistor	RE35YQ 1.8K ohm F (1/4W 1.8K ohm)
R122	Fixed Metal Film Resistor	RE35YQ 4.3K ohm F (1/4W 4.3K ohm)
R123	Fixed Metal Film Resistor	RE35YQ 43 ohm F (1/4W 43 ohm)
R124	Fixed Metal Film Resistor	RE35YQ 33K ohm F (1/4W 33K ohm)
R125	Fixed Metal Film Resistor	RE35YQ 100 ohm F (1/4W 100 ohm)
R126	Fixed Metal Film Resistor	RE35YQ 10 ohm F (1/4W 10 ohm)
R127	Fixed Metal Film.Resistor	RE35YQ 27K ohm F (1/4W 27K ohm)
R128	Fixed Metal Film Resistor	RE35YQ 4.7K ohm F (1/4W 4.7K ohm)
R129	Fixed Metal Film Resistor	RE35YQ 47K ohm F (1/4W 47K ohm)
R130	Fixed Metal Film Resistor	RE35YQ 75K ohm F (1/4W 75K ohm)
R131	Metal Oxide Film Fixed Resistor	ERG-2AVJ102 (2W 1K ohm)
R132	Metal Oxide Film Fixed Resistor	ERG-2AVJ471 (2W 470 ohm)
※R133	Not Used	
R134	Fixed Metal Film Resistor	RE35YQ 47 ohm F (1/4W 47 ohm)
R135	Fixed Metal Film Resistor	RE35YQ 47 ohm F (1/4W 47 ohm)
※R136	Not Used	
R137	Fixed Metal Film Resistor	RE35YQ 15 ohm F (1/4W 15 ohm)
R138	Fixed Metal Film Resistor	RE35YQ 10 ohm F (1/4W 10 ohm)
R139	Fixed Metal Film Resistor	RE35YQ 47 ohm F (1/4W 47 ohm)
※R140	Fixed Metal Film Resistor	RE35YQ 10 ohm F (1/4W 10 ohm)
R141	Fixed Metal Film Resistor	RE35YQ 10K ohm F (1/4W 10K ohm)
R142	Fixed Metal Film Resistor	RE35YQ 100K ohm F (1/4W 100K ohm)
R143	Fixed Metal Film Resistor	RE35YQ 6.8K ohm F (1/4W 6.8K ohm)
R144	Carbon Film Fixed Resistor	ERD-50VJ100 (1/2W 10 ohm)
R145	Not Used	
R146	Fixed Metal Film Resistor	RE35YQ 47K ohm F (1/4W 47K ohm)
R147	Fixed Metal Film Resistor	RE35YQ 10 ohm F (1/4W 10 ohm)
R148	Fixed Metal Film Resistor	RE40YR 470K ohm F (1/4W 470K ohm)
R149	Fixed Metal Film Resistor	RE35YQ 5.6K ohm F (1/4W 5.6K ohm)
R150	Fixed Metal Film Resistor	RE40YR 120K ohm F (1/4W 120K ohm)
R151	Fixed Metal Film Resistor	RE35YQ 10 ohm F (1/4W 10 ohm)
R152	Fixed Metal Film Resistor	RE35YQ 10 ohm F (1/4W 10 ohm)
R153	Fixed Metal Film Resistor	RE35YQ. 100 ohm F (1/4W 100 ohm)

SYM	PARTS	DESCRIPTION	
R401	Fixed Metal Film Resistor	RE35YQ 10 ohm F	(1/4W 10 ohm)
R402	Fixed Metal Film Resistor	RE35YQ 22K ohm F	(1/4W 22K ohm)
R403	Fixed Metal Film Resistor	RE35YQ 27K ohm F	(1/4W 27K ohm)
R404	Fixed Metal Film Resistor	RE35YQ 47K ohm F	(1/4W 47K ohm)
R405	Fixed Metal Film Resistor	RE35YQ 470 ohm F	(1/4W 470ohm)
R406	Fixed Metal Film Resistor	RF35YQ 3.3K ohm F	(1/4W 3.3K ohm)
R407	Fixed Metal Film Resistor	RE35YQ 100 ohm F	(1/4W 100 ohm)
R408	Fixed Metal Film Resistor	RE35YQ 68Kohm F	(1/4W 68K ohm)
R409	Fixed Metal Film Resistor	RE35YQ 18K ohm F	(1/4W 18K ohm)
R410	Fixed Metal Film Resistor	RE35YQ 3.3K ohm F	(1/4W 3.3K ohm)
R411	Fixed Metal Film Resistor	RE35YQ 1K ohm F	(1/4W 1K ohm)
R412	Fixed Metal Film Resisror	RE35YQ 4.7K ohm F	(1/4W 4.7K ohm)
R413	Fixed Metal Film Resistor	RE35YQ 220 ohm F	(1/4W 220 ohm)
R414	Fixed Metal Film Resistor	RE40YR 110K ohm F	(1/4W 110K ohm)
R415	Fixed Metal Film Resistor	RE35YQ 10K ohm F	(1/4W 10K ohm)
R416	Fixed Metal Film Resistor	RE35YQ 1.2K ohm F	(1/4W 1.2K ohm)
R417	Fixed Metal Film Resistor	RE35YQ 1.2K ohm F	(1/4W 1.2K ohm)
R418	Fixed Metal Film Resistor	RE35YQ 47 ohm F	(1/4W 47 ohm)
R419	Fixed Metal Film Resistor	RE35YQ 47 ohm F	(1/4W 47 ohm)
R420	Fixed Metal Film Resistor	RE35YQ 100 ohm F	(1/4W 100 ohm)
R421	Fixed Metal Film Resistor	RE35YQ 68K ohm F	(1/4W 68K ohm)
R422	Fixed Metal Film Resistor	RE35YQ 10K ohm F	(1/4W 10K ohm)
R423	Fixed Metal Film Resistor	RE35YQ 100 ohm F	(1/4W 100 ohm)
R424	Fixed Metal Film Resistor	RE35YQ 100 ohm F	(1/4W 100 ohm)
R425	Fixed Metal Film Resistor	RE35YQ 470 ohm F	(1/4W 470 ohm)
R426	Fixed Metal Film Resistor	RE35YQ 100 ohm F	(1/4W 100 ohm)
R427	Fixed Metal Film Resistor	RE35YQ 10K ohm F	(1/4W 10K ohm)
R428	Fixed Metal Film Resistor	RE35YQ 10K ohm F	(1/4W 10K ohm)
R429	Fixed Metal Film Resistor	RE35YQ 100 ohm F	(1/4W 100 ohm)
R430	Fixed Metal Film Resistor	RE35YQ 100 ohm F	(1/4W 100 ohm)
R431	Fixed Metal Film Resistor	RE35YQ 3.3K ohm F	(1/4W 3.3K ohm)
R432	Fixed Metal Film Resistor	RE35YQ 5.1K ohm F	(1/4W 5.1K ohm)
R433	Fixed Metal Film Resistor	RE35YQ 10K ohm F	(1/4W 10K ohm)
R434	Fixed Metal Film Resistor	RE35YQ 1K ohm F	(1/4W 1K ohm)
※ R435	Fixed Metal Film Resistor	RE35YQ 5.1kohm F	(1/4W 5.1Kohm)
※ R436	Fixed Metal Film Resistor	RE35YQ 24K ohm F	(1/4W 24K ohm)
※ R437	Fixed Metal Film Resistor	RE35YQ 5.1K ohm F	(1/4W 5.1K ohm)
R438	Fixed Metal Film Resistor	RE35YQ 47 ohm F	(1/4W 47 ohm)
R439	Fixed Metal Film Resistor	RE35YQ 47 ohm F	(1/4W 47 ohm)
R440	Fixed Metal Film Resistor	RE35YQ 1K ohm F	(1/4W 1K ohm)
R441	Fixed Metal Film Resistor	RE35YQ 47 ohm F	(1/4W 47 ohm)
R442	Fixed Metal Film Resistor	RE35YQ 2.2K ohm F	(1/4W 2.2K ohm)
R443	Fixed Metal Film Resistor	RE35YQ 2.2K ohm F	(1/4W 2.2K ohm)
R444	Fixed Metal Film Resistor	RE35YQ 1K ohm F	(1/4W 1K ohm)
※ R445	Fixed Metal Film Resistor	RE35YQ 2.2K ohm F	(1/4W 4.7K ohm)
R446	Fixed Metal Film Resistor	RE35YQ 10 ohm F	(1/4W 10 ohm)
R447	Fixed Metal Film Resistor	RE35YQ 1K ohm F	(1/4W 1K ohm)
R448	Fixed Metal Film Resistor	RE35YQ 5.6K ohm F	(1/4W 5.6K ohm)
R449	Fixed Metal Film Resistor	RE35YQ 470 ohm F	(1/4W 470 ohm)
R450	Fixed Metal Film Resistor	RE35YQ 1K ohm F	(1/4W 1K ohm)
R451	Fixed Metal Film Resistor	RE35YQ 3.6K ohm F	(1/4W 3.6Kohm)
R452	Fixed Metal Film Resistor	RE35YQ 1K ohm F	(1/4W 1K ohm)
R453	Fixed Metal Film Resistor	RE35YQ 4.7K ohm F	(1/4W 4.7K ohm)
R454	Fixed Metal Film Resistor	RE35YQ 1K ohm F	(1/4W 1K ohm)
R455	Fixed Metal Film Resistor	RE35YQ4.7K ohm F	(1/4W 4.7K ohm)
R456	Metal Oxide Film Resistor	ERG-2AVJ 221	(2W 220 ohm)
R457	Metal Oxide Film Resistor	ERG-2AVJ 221	(2W 220 ohm)

SYM	PARTS	DESCRIPTION
C101	Aluminum Electrolytic Capacitor	SL16VB10 (16V 10uF)
C102	Ceramic Trimmer Capacitor	ECV-1ZW20X53N (2.5-20.5pF)
C103	Dipped Mica Capacitor	DM05YC050J3 (300V 5pF)
C104	Aluminum Electrolytic Capacitor	SL16VB100 (16V 100uF)
C105	Ceramic Capacitor	DD314-957BC104M50V-08 (50V 0.1uF)
C106	Aluminum Electrolytic Capacitor	SL16VB10 (16V 10uF)
C107	Ceramic Trimmer Capacitor	ECV-1ZW10X53N (2.0-12.5pF)
C108	Ceramic Capacitor	DD350-950BC103M50V-08 (50V 0.01uF)
C109	Aluminum Electrolytic Capacitor	SL25VB100 (25V 100uF)
C110	Aluminum Electrolytic Capacitor	SL16VB330 (16V 330uF)
C111	Aluminum Electrolytic Capacitor	SL16VB100 (16V 100uF)
※C112	Dipped Mica Capacitor	DM12YC102J3 (300V 1000pF)
C113	Aluminum Electrolytic Capacitor	SL16VB10 (16V 10uF)
C114	Ceramic Capacitor	DD314-957BC104M50X-08 (50V 0.1uF)
C115	Aluminum Electrolytic Capacitor	SL16VB100 (16V 100uF)
C116	Ceramic Capacitor	DD314-957BC104M50V-08 (50V 0.1uF)
C117	Aluminum Electrolytic Capacitor	SL25VB100 (25V 100uF)
※C118	Not Used	
※C119	Dipped Mica Capacitor	DM10YC330J3 (300V 33pF)
※C120	Dipped Mica Capacitor	DM10YC221J3 (300V 220pF)
C121	Ceramic Capacitor	DD316E103P500V-02 (500V 0.01uF)
C122	Aluminum Electrolytic Capacitor	SL160VB10 (160V 10uF)
C123	Dipped Mica Capacitor	DM10C 361J3 (300V 360pF)
C124	Ceramic Capacitor	DD314-957BC104M50V-08 (50V 0.1uF)
C125	Dipped Mica Capacitor	DM12C 561J3 (300V 560pF)
C126	Polyester Film Capacitor	ECQ-M1H104KZ (50V 0.1uF)
C127	Not Used	
C128	Not Used	
C129	Not Used	
C130	Aluminum Electrolytic Capacitor	SL16VB100 (16V 100uF)
C131	Ceramic Capacitor	DD314-957BC104M50V-08 (50V 0.1uF)
C132	Dipped Mica Capacitor	DM05C 020J3 (300V 2pF)
C133	Ceramic Capacitor	DD314-957BC103M50V-08 (50V 0.01uF)
※C134	Dipped Mica Capacitor	DM10YC221J3 (300V 220pF)
C401	Aluminum Electrolytic Capacitor	SL16VB100 (16V 100uF)
C402	Ceramic Capacitor	DD314-957BC104M50V-08 (50V 0.1uF)
C403	Aluminum Electrolytic Capacitor	SL16VB10 (16V 10uF)
C404	Aluminum Electrolytic Capacitor	SL16VB10 (16V 10uF)
C405	Aluminum Electrolytic Capacitor	SL16VB100 (16V 100uF)
C406	Ceramic Capacitor	DD314-957BC104M50V-08 (50V 0.1uF)
※C407	Not Used	
C408	Aluminum Electrolytic Capacitor	SL25VB4R7 (25V 4.7uF)
C409	Polyester Film Capacitor	ECQ-M05223KZ (50V 0.022uF)
C410	Aluminum Electrolytic Capacitor	SL16VB10 (16V 10uF)

SYM	PARTS	DESCRIPTION
C411	Aluminum Electrolytic Capacitor	SL16VB10 (16V 10uF)
C412	Dipped Mica Capacitor	DM10YC331J3 (300V 330pF)
C413	Aluminum Electrolytic Capacitor	SL16VB10 (16V 10uF)
C414	Dipped Mica Capacitor	DM10YC221J3 (300V 220pF)
C415	Dipped Mica Capacitor	DM15YC102J3 (300V 1000pF)
C416	Dipped Mica Capacitor	DM10YC151J3 (300V 150pF)
C417	Aluminum Electrolytic Capacitor	SL16VB10 (16V 10uF)
C418	Aluminum Electrolytic Capacitor	SL16VB47 (16V 47uF)
C419	Ceramic Capacitor	D314-957BC104M50V-08 (50V 0.1uF)
C420	Ceramic Capacitor	DD314-957BC104M50V-08 (50V 0.1uF)
C421	Polyester Film Capacitor	ECQ-M2104KZ (200V 0.1uF)
C422	Polyester Film Capacitor	ECQ-M2104KZ (200V 0.1uF)
CN4	Connector	PCN6A-15P-2.5DS
CN5	Connector	PCN6A-10P-2.5DS
CN6	Connector	PCN6A-10P-2.5DS
CN401	Connector	1-480318-0
S401a	Toggle Switch	M-2022P
	Connector Contact	60617-5
	Connector Stopper	
	Heat Sink	ST-9410
	Terminal	TBP-6
	Pin	59BN1109

2.DEFLECTION DRIVE BOARD

SYM	PARTS	DESCRIPTION
IC101	Integrated Circuit	MC14528BCP
IC102	Integrated Circuit	MC14528BCP
IC103	Integrated Circuit	CD4046AE
IC104	Integrated Circuit	MC14013BCP
IC201	Integrated Circuit	MC14538BCP
IC202	Integrated Circuit	μA747HC
IC203	Integrated Circuit	MC1496N
IC204	Integrated Circuit	CA3100T
TR101	Transistor	2SA1015Y
TR102	Transistor	2SC1815Y
TR103	Transistor	2SC1815Y
TR104	Transistor	2SD478C/2SD1138C
TR201	Transistor	2SA1015Y
TR202	Transistor	2SC1815Y
TR203	Not Used	
TR204	Transistor	2SA1015Y
TR205	Transistor	2SC1815Y
TR206	Transistor	2SA1015Y
TR207	Transistor	2SK30A
TR208	Transistor	2SC1514
TR209	Transistor	2SA778AK
TR301	Transistor	2SC1815Y
TR302	Transistor	2SC1514
TR303	Transistor	2SC1514
TR304	Transistor	2SD478C/2SD1138C
TR305	Transistor	2SC1514
TR306	Transistor	2SC1514
TR401	Transistor	2SC1815Y
CR101	Thyristor	03P05M
D101	Diode	V06C
D102	Diode	V06C.
D103	Diode	RD5.6EB
D104	Diode	1S1835
D105	Not Used	
D106	Diode	1S1835
D201	Diode	1S953
D202	Diode	1S953
D203	Diode	1S953
D204	Diode	1S953
D205	Diode	1N60H
D206	Diode	1N60H
D207	Diode	1S953
D208	Diode	1S953
D209	Diode	V06C
D210	Diode	V06C
D211	Diode	1S953
D212	Diode	1S953
D213	Diode	1S953
D301	Diode	1S953
D302	Diode	1S953
D303	Diode	1S953
D304	Diode	V06C
D305	Diode	V06C
D306	Diode	1S953
D401	Diode	1S953
D402	Diode	1S953
D403	Diode	1S953
D404	Diode	RD6.2EB

SYM	PARTS	DESCRIPTION
IC101	Integrated Circuit	MC14528BCP
IC102	Integrated Circuit	MC14528BCP
IC103	Integrated Circuit	CD4046AE
IC104	Integrated Circuit	MC14013BCP
IC201	Integrated Circuit	MC14538BCP
IC202	Integrated Circuit	uA747HC
IC203	Integrated Circuit	MC1495N
IC204	Integrated Circuit	CA3100T
TR101	Transistor	2SA1015Y
TR102	Transistor	2SC1815Y
TR103	Transistor	2SC1815Y
TR104	Transistor	2SD478C/2SD1138C
TR201	Transistor	2SA1015Y
TR202	Transistor	2SC1815Y
TR203	Not Used	
TR204	Transistor	2SA1015Y
TR205	Transistor	2SC1815Y
TR206	Transistor	2SA1015Y
TR207	Transistor	2SK30A
TR208	Transistor	2SC1514
TR209	Transistor	2SA778AK
TR301	Transistor	2SC1815Y
TR302	Transistor	2SC1514
TR303	Transistor	2SC1514
TR304	Transistor	2SD478C/2SD1138C
TR305	Transistor	2SC1514
TR306	Transistor	2SC1815Y
TR401	Transistor	
CR101	Thyristor	03P05M
D101	Diode	V06C
D102	Diode	V06C
D103	Diode	RD5.6EB
D104	Diode	1S1835
D105	Not Used	
D106	Diode	1S1835
D201	Diode	1S953
D202	Diode	1S953
D203	Diode	1S953
D204	Diode	1S953
D205	Diode	1N60H
D206	Diode	1N60H
D207	Diode	1S953
D208	Diode	1S953
D209	Diode	V06C
D210	Diode	V06C
D211	Diode	1S953
D212	Diode	1S953
D213	Diode	1S953
D301	Diode	1S953
D302	Diode	1S953
D303	Diode	1S953
D304	Diode	V06C
D305	Diode	V06C
D306	Diode	1S953
D401	Diode	1S953
D402	Diode	1S953
D403	Diode	1S953
D404	Diode	RD5.2EB

SYM	PARTS	DESCRIPTION	
VR101	Variable Resistor(Cermet Type)	GFP-061 50K ohm B	
VR102	Variable Resistor(Cermet Type)	GFP-061 50K ohm B	
VR103	Variable Resistor(Cermet Type)	GFP-061 50K ohm B	
VR104	Variable Resistor(Cermet Type)	GFP-061 50K ohm B	
VR105	Variable Resistor(Cermet Type)	GFP-061 50K ohm B	
VR201	Variable Resistor(Cermet Type)	GFP-061 50K ohm B	
VR202	Variable Resistor(Cermet Type)	GFP-061 100K ohm B	
VR203	Variable Resistor(Cermet Type)	GFP-061 100K ohm B	
VR204	Variable Resistor(Cermet Type)	GFP-061 5K ohm B	
VR205	Variable Resistor(Cermet Type)	GFP-061 2K ohm B	
VR206	Variable Resistor(Cermet Type)	GFP-061 2K ohm B	
VR207	Variable Resistor(Cermet Type)	GFP-061 2K ohm B	
VR208	Variable Resistor(Cermet Type)	GFP-061 1K ohm B	
VR301	Variable Resistor(Cermet Type)	GFP-061 20K ohm B	
VR302	Variable Resistor(Cermet Type)	GFP-061 20K ohm B	
L301	Induqtor	ST-9380	
L302	Inductor	ST-9379	
L303	Inductor	LF5-392K	
L304	Inductor	ST-9265A	
T101	Transformer	ST-9378	
R101	Carbon Film Fixed Resistor	ERD-25VJ101	(1/4W 100 ohm)
R102	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R103	Carbon Film Fixed Resistor	ERD-25VJ102	(1/4W 1K ohm)
R104	Carbon Film Fixed Resistor	ERD-25VJ682	(1/4W 6.8K ohm)
R105	Carbon Film Fixed Resistor	ERD-25VJ513	(1/4W 51K ohm)
R106	Carbon Film Fixed Resistor	ERD-25VJ333	(1/4W 33K ohm)
R107	Carbon Film Fixed Resistor	ERD-25VJ363	(1/4W 36K ohm)
R108	Carbon Film Fixed Resistor	ERD-25VJ333	(1/4W 33K ohm)
R109	Carbon Film Fixed Resistor	ERD-25VJ154	(1/4W 150K ohm)
R110	Carbon Film Fixed Resistor	ERD-25VJ513	(1/4W 51K ohm)
R111	Carbon Film Fixed Resistor	ERD-25VJ363	(1/4W 36K ohm)
R112	Carbon Film Fixed Resistor	ERD-25VJ472	(1/4W 4.7K ohm)
R113	Carbon Film Fixed Resistor	ERD-25VJ513	(1/4W 51K ohm)
R114	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R115	Carbon Film Fixed Resistor	ERD-25VJ680	(1/4W 68 ohm)
R116	Carbon Film Fixed Resistor	ERD-25VJ332	(1/4W 3.3K ohm)
R117	Carbon Film Fixed Resistor	ERD-25VJ332	(1/4W 3.3K ohm)
R118	Carbon Film Fixed Resistor	ERD-25VJ222	(1/4W 2.2K ohm)
R119	Carbon Film Fixed Resistor	ERD-25VJ821	(1/4W 820 ohm)
R120	Carbon Film Fixed Resistor	ERD-25VJ102	(1/4W 1K ohm)
R121	Carbon Film Fixed Resistor	ERD-25VJ562	(1/4W 5.6K ohm)
R122	Carbon Film Fixed Resistor	ERD-25VJ222	(1/4W 2.2K ohm)
R123	Carbon Film Fixed Resistor	ERD-25VJ470	(1/2W 47 ohm)
R124	Carbon Film Fixed Resistor	ERD-25VJ391	(1/4W 390 ohm)
R125	Carbon Film Fixed Resistor	ERD-25VJ102	(1/4W 1K ohm)
R126	Carbon Film Fixed Resistor	ERD-25VJ101	(1/4W 100 ohm)
R127	Carbon Film Fixed Resistor	ERD-25VJ681	(1/4W 680 ohm)
R128	Carbon Film Fixed Resistor	ERD-25VJ222	(1/4W 2.2K ohm)
R129	Metal Oxide Film Fixed Resistor	ERG-2AVJ562	(2W 5.6K ohm)
R130	Fixed Wirewound Resistor	ERF-2RJ 5R1	(2W 5.1 ohm)
R131	Fixed Wirewound Resistor	ERF-2RJ 5R1	(2W 5.1 ohm)

SYM	PARTS	DESCRIPTION	(3/6)
R201	Carbon Film Fixed Resistor	ERD-25VJ101	(1/4W 100 ohm)
R202	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R203	Carbon Film Fixed Resistor	ERD-25VJ102	(1/4W 1K ohm)
R204	Carbon Film Fixed Resistor	ERD-25VJ122	(1/4W 1.2K ohm)
R205	Carbon Film Fixed Resistor	ERD-25VJ392	(1/4W 3.9K ohm)
R206	Carbon Film Fixed Resistor	ERD-25VJ332	(1/4W 3.3K ohm)
R207	Carbon Film Fixed Resistor	ERD-25VJ392	(1/4W 3.9K ohm)
R208	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R209	Carbon Film Fixed Resistor	ERD-25VJ623	(1/4W 62K ohm)
R210	Not Used		
R211	Carbon Film Fixed Resistor	ERD-25VJ223	(1/4W 22K ohm)
R212	Carbon Film Fixed Resistor	ERD-25VJ101	(1/4W 100 ohm)
R213	Carbon Film Fixed Resistor	ERD-25VJ302	(1/4W 3K ohm)
R214	Carbon Film Fixed Resistor	ERD-25VJ471	(1/4W 470 ohm)
R215	Carbon Film Fixed Resistor	ERD-25VJ681	(1/4W 680 ohm)
R216	Carbon Film Fixed Resistor	ERD-25VJ563	(1/4W 56K ohm)
R217	Carbon Film Fixed Resistor	ERD-25VJ392	(1/4W 3.9K ohm)
R218	Carbon Film Fixed Resistor	ERD-25VJ753	(1/4W 75K ohm)
R219	Carbon Film Fixed Resistor	ERD-25VJ223	(1/4W 22K ohm)
R220	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R221	Carbon Film Fixed Resistor	ERD-25VJ473	(1/4W 47K ohm)
R222	Carbon Film Fixed Resistor	ERD-25VJ472	(1/4W 4.7K ohm)
R223	Carbon Film Fixed Resistor	ERD-25VJ223	(1/4W 22K ohm)
R224	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R225	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R226	Carbon Film Fixed Resistor	ERD-25VJ622	(1/4W 6.2K ohm)
R227	Carbon Film Fixed Resistor	ERD-25VJ622	(1/4W 6.2K ohm)
R228	Carbon Film Fixed Resistor	ERD-25VJ223	(1/4W 22K ohm)
R229	Carbon Film Fixed Resistor	ERD-25VJ152	(1/4W 1.5K ohm)
R230	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R231	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R232	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R233	Carbon Film Fixed Resistor	ERD-25VJ332	(1/4W 3.3K ohm)
R234	Carbon Film Fixed Resistor	ERD-25VJ332	(1/4W 3.3K ohm)
R235	Carbon Film Fixed Resistor	ERD-25VJ101	(1/4W 100 ohm)
R236	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R237	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R238	Carbon Film Fixed Resistor	ERD-25VJ101	(1/4W 100 ohm)
R239	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R240	Carbon Film Fixed Resistor	ERD-25VJ471	(1/4W 470 ohm)
R241	Carbon Film Fixed Resistor	ERD-25VJ472	(1/4W 4.7K ohm)
R242	Carbon Film Fixed Resistor	ERD-25VJ472	(1/4W 4.7K ohm)
R243	Carbon Film Fixed Resistor	ERD-25VJ511	(1/4W 510 ohm)
R244	Carbon Film Fixed Resistor	ERD-25VJ511	(1/4W 510 ohm)
R245	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R246	Carbon Film Fixed Resistor	ERD-25VJ103	(1/4W 10K ohm)
R247	Carbon Composition Resistor	ERC-1GJ 514	(1W 510K ohm)
R248	Carbon Film Fixed Resistor	ERD-25VJ104	(1/4W 100K ohm)
R249	Carbon Film Fixed Resistor	ERD-25VJ472	(1/4W 4.7K ohm)
R250	Carbon Film Fixed Resistor	ERD-25VJ271	(1/4W 270 ohm)
R251	Carbon Film Fixed Resistor	ERD-25VJ153	(1/4W 15K ohm)
R252	Carbon Film Fixed Resistor	ERD-25VJ333	(1/4W 33K ohm)
R253	Carbon Film Fixed Resistor	ERD-25VJ102	(1/4W 1K ohm)
R254	Carbon Film Fixed Resistor	ERD-25VJ621	(1/4W 620 ohm)
R255	Carbon Film Fixed Resistor	ERD-50VJ470	(1/2W 47 ohm)
R256	Carbon Film Fixed Resistor	ERD-50VJ100	(1/2W 10 ohm)
R257	Carbon Film Fixed Resistor	ERD-50VJ100	(1/2W 10 ohm)
R258	Carbon Film Fixed Resistor	ERD-25VJ472	(1/4W 4.7K ohm)
R259	Carbon Film Fixed Resistor	ERD-25VJ152	(1/4W 1.5K ohm)
R260	Carbon Film Fixed Resistor	ERD-25VJ821	(1/4W 820 ohm)

SYM	PARTS	DESCRIPTION	(4/6)
R261	Carbon Film Fixed Resistor	ERD-25VJ121	(1/4W 120 ohm)
R262	Carbon Film Fixed Resistor	ERD-25VJ124	(1/4W 120K ohm)
R263	Fixed Wirewound Resistor	ERF-2RJ100	(2W 10 ohm)
R264	Carbon Film Fixed Resistor	ERD-50VJ470	(1/2W 47 ohm)
R265	Carbon Film Fixed Resistor	ERD-25VJ221	(1/4W 220 ohm)
※R266	Carbon Film Fixed Resistor	ERD-25VJ471	(1/4W 470 ohm)
R267	Metal Oxide Film Fixed Resistor	ERG-2AVJ272	(2W 2.7K ohm)
R268	Metal Oxide Film Fixed Resistor	ERG-2AVJ272	(2W 2.7K ohm)
R269	Metal Oxide Fusing Resistor	ERQ-1CJ4R7	(1W 4.7 ohm)
R270	Carbon Film Fixed Resistor	ERD-25VJ181	(1/4W 180 ohm)
R271	Carbon Film Fixed Resistor	ERD-25VJ393	(1/4W 39K ohm)
R272	Carbon Film Fixed Resistor	ERF-2RJ2R2	(2W 2.2 ohm)
R273	Not Used		
R274	Fixed Wirewound Resistor	ERF-2AJ3R0	(2W 3 ohm)
R275	Metal Oxide Film Fixed Resistor	ERG-2AVJ221	(2W 220 ohm)
R276	Metal Oxide Film Fixed Resistor	ERG-2AVJ221	(2W 220 ohm)
R277	Carbon Film Fixed Resistor	ERD-25VJ152	(1/4W 1.5K ohm)
R278	Carbon Film Fixed Resistor	ERD-25VJ101	(1/4W 100 ohm)
R279	Carbon Film Fixed Resistor	EED-25VJ105	(1/4W 100K ohm)
R301	Carbon Film Fixed Resistor	ERD-50VJ223	(1/2W 22K ohm)
R302	Carbon Film Fixed Resistor	ERD-50VJ104	(1/2W 100K ohm)
R303	Carbon Film Fixed Resistor	ERD-50VJ182	(1/2W 1.8K ohm)
R304	Carbon Film Fixed Resistor	ERD-50VJ183	(1/2W 18K ohm)
R305	Carbon Film Fixed Resistor	ERD-50VJ102	(1/2W 1K ohm)
R306	Carbon Film Fixed Resistor	ERD-50VJ473	(1/2W 47K ohm)
R307	Carbon Film Fixed Resistor	ERD-50VJ102	(1/2W 1K ohm)
R308	Carbon Film Fixed Resistor	ERD-50VJ223	(1/2W 22K ohm)
R309	Carbon Film Fixed Resistor	ERD-50VJ363	(1/2W 36K ohm)
R310	Carbon Film Fixed Resistor	ERD-50VJ333	(1/2W 33K ohm)
R311	Carbon Film Fixed Resistor	ERD-50VJ223	(1/2W 22K ohm)
R312	Carbon Film Fixed Resistor	ERD-50VJ223	(1/2W 22K ohm)
R313	Carbon Film Fixed Rsistor	ERD-50VJ223	(1/2W 22K ohm)
※R314	Carbon Film Fixed Resistor	ERD-50VJ123	(1/2W 12K ohm)
R315	Carbon Film Fixed Resistor	ERD-50VJ221	(1/2W 220 ohm)
R316	Carbon Film Fixed Resistor	ERD-50VJ153	(1/2W 15K ohm)
※R317	carbon Film Fixed Resistor	ERD-50VJ183	(1/2W 18K ohm)
R318	Metal Oxide Film Fixed Resistor	ERG-5CK122	(5W 1.2K ohm)
R319	Fixed Wirewound Resistor	ERF-2RJ100	(2W 10 ohm)
R320	Carbon Film Fixed Resistor	ERD-50VJ103	(1/2W 10K ohm)
R321	Carbon Film Fixed Resistor	ERD-50VJ222	(1/2W 2.2K ohm)
R322	Carbon Film Fixed Resistor	ERD-50VJ622	(1/2W 6.2K ohm)
R323	Carbon Film Fixed Resistor	ERD-50VJ222	(1/2W 2.2K ohm)
R324	Carbon Film Fixed Resistor	ERD-50VJ102	(1/2W 1K ohm)
R325	Carbon Film Fixed Resistor	ERD-50VJ472	(1/2W 4.7K ohm)
R326	Caebon FIlm FIxed Resistor	ERD-50VJ623	(1/2W 62K ohm)
R327	Carbon Film Fixed Resistor	ERD-50VJ123	(1/2W 12K ohm)
R328	Not Used		
R329	Carbon Film Fixed Resistor	ERD-50VJ474	(1/2W 470K ohm)
R330	Carbon Film Fixed Resistor	ERD-50VJ223	(1/2W 22K ohm)
R331	Carbon Film Fixed Resistor	ERD-50VJ475	(1/2W 470K ohm)
R332	Carbon Film Fixed Resistor	ERD-50VJ102	(1/2W 1K ohm)
R401	Carbon Film Fixed Resistor	ERD-25VJ473	(1/4W 47K ohm)
R402	Carbon Film Fixed Resistor	ERD-25VJ333	(1/4W 33K ohm)
R403	Carbon Film Fixed Resistor	ERD-25VJ332	(1/4W 3.3K ohm)

SYM	PARTS	DESCRIPTION	
C101	Aluminum Electrolytic Capacitor	SL25VB4R7	(25V 4.7uF)
C102	Dipped Mica Capacitor	DM10C 221J3	(300V 220pF)
C103	Dipped Mica Capacitor	DM10C 221J3	(300V 220pF)
C104	Dipped Mica Capacitor	DM10C 331J3	(300V 330pF)
C105	Polyester Film Capacitor	ECQ-M1H104KZ	(50V 0.1uF)
*C106	Dipped Mica Capacitor	DM15C 122J3	(300V 1200pF)
C107	Dipped Mica Capacitor	DM10C 331J3	(300V 330pF)
C108	Not Used		
C109	Aluminum Electrolytic Capacitor	SL16VB330	(16V 330uF)
C110	Polyester Film Capacitor	ECQ-M1H104KZ	(50V 0.1uF)
C111	Aluminum Electrolytic Capacitor	SL6R3VB470	(6.3V 470uF)
C112	Aluminum Electrolytic Capacitor	SL50VB1	(50V 1uF)
C113	Aluminum Electrolytic Capacitor	SL160VB10	(160V 10uF)
C114	Polypropylene Film Capacitor	ECQ-M6102KZ	(600V 0.001uF)
C153	Polypropylene Film Capacitor	ECQ-M6152KZ	(600V 0.0015uF)
C154	Polypropylene Film Capacitor	ECQ-M1H152KZ	(50V 0.0015uF)
C201	Aluminum Electrolytic Capacitor	SL16VB22	(16V 22uF)
C202	Aluminum Electrolytic Capacitor	SL50VB0R47	(50V 0.47uF)
C203	Polyester Film Capacitor	ECQ-M1H103KZ	(50V 0.01uF)
C204	Polyester Film Capacitor	ECQ-M1H103KZ	(50V 0.01uF)
C205	Polyester Film Capacitor	ECQ-M1H154KZ	(50V 0.15uF)
C206	Polyester Film Capacitor	ECQ-M1H683KZ	(50V 0.068uF)
C207	Polyester Film Capacitor	ECQ-M1H104KZ	50V 0.1uF)
C208	Aluminum Electrolytic Capacitor	SL16VB220	(16V 220uF)
C209	Polyester Film Capacitor	ECQ-M1H473KZ	(50V 0.047uF)
C210	Not Used		
C211	Polyester Film Capacitor	ECQ-M1H103KZ	(50V 0.01uF)
C212	Polyester Film Capacitor	ECQ-M1H103KZ	(50V 0.01uF)
C213	Polyester Film Capacitor	ECQ-M1H334KZ	(50V 0.33uF)
C214	Dipped Mica Capacitor	DM12C 821J3	(300V 820pF)
C215	Polyester Film Capacitor	ECQ-M1H103KZ	(50V 0.01uF)
C216	Aluminum lectrolytic Capacitor	SL10VB220	(10V 220uF)
C217	Polyester Film Capacitor	ECQ-M1H104KZ	(50V 0.1uF)
C218	Aluminum Electrolytic Capacitor	SL16VB100	(16V 100uF)
C219	Polyester Film Capacitor	ECQ-M1H104KZ	(50V 0.1uF)
C220	Polyester Film Capacitor	ECQ-M2472KZ	(200V 0.0047uF)
C221	Dipped Mica Capacitor	DM15C 102J3	(300V 1000pF)
C222	Ceramic Trimmer Capacitor	ECV-1ZW40X53N	(4.0-40.0pF)
C223	Polyester Film Capacitor	ECQ-M1H683KZ	(50V 0.068uF)
C224	Polyester Film Capacitor	ECQ-M1H104KZ	(50V 0.1uF)
C225	Aluminum Electrolytic Capacitor	SL16VB100	(16V 100uF)
C226	Not Used		
C227	Polyester Film Capacitor	ECQ-M1H104KZ	(50V 0.1uF)
C228	Aluminum Electrolytic Capacitor	SL16VB100	(16V 100uF)
C229	Aluminum Electrolytic Capacitor	SL16VB100	(16V 100uF)
C230	Polyester Film Capacitor	ECQ-M2473KZ	(200V 0.047uF)
C231	Dipped Mica Capacitor	DM12C 391J3	(300V 390pF)
C232	Aluminum Electrolytic Capacitor	SL50VB10	(50V 10uF)
C233	Aluminum Electrolytic Capacitor	SL100VB47	(100V 47uF)
C234	Aluminum Electrolytic Capacitor	SL100VB100	(100V 100uF)
*C235	Not Used		
C236	Aluminum Electrolytic Capacitor	SL16VB100	(16V 100uF)
C237	Polyester Film Capacitor	ECQ-M1H104KZ	(50V 0.1uF)
C238	Dipped Mica Capacitor	DM05C 470J3	(300V 47pF)
C239	Polyester Film Capacitor	ECQ-M1H104KZ	(50V 0.1uF)
C240	Polyester Film Capacitor	ECQ-M1H102KZ	(50V 0.001uF)
C241	Aluminum Electrolytic Capacitor	SL16VB220	(16V 220uF)
C242	Dipped Mica Capacitor	DM15C102J3	(300V 1000pF)
C243	Not Used		
C244	Polyester Film Capacitor	ECQ-M2104KZ	(200V 0.1uF)
C245	Polyester Film Capacitor	ECQ-M1H104KZ	(50V 0.1uF)
C246	Polyester Film Capacitor	ECQ-M1H103KZ	(50V 0.01uF)
C247	Polyester Film Capacitor	ECQ-M1H102KZ	(50V 0.001uF)

SYM	PARTS	DESCRIPTION	
C101	Aluminum Electrolytic Capacitor	SLE25VB4R7	(25V 4.7uF)
C102	Dipped Mica Capacitor	DM10C 22J13	(300V 220pF)
C103	Dipped Mica Capacitor	DM10C 22J13	(300V 220pF)
C104	Dipped Mica Capacitor	DM10C 33J13	(300V 330pF)
C105	Polyester Film Capacitor	EC0-MH10A4Z	(50V 0.1uF)
*C106	Dipped Mica Capacitor	DM15C 12J13	(300V 120pF)
C107	Dipped Mica Capacitor	DM10C 33J13	(300V 330pF)
C108	Not Used		
C109	Aluminum Electrolytic Capacitor	SLE16VB33D	(16V 330uF)
C110	Polyester Film Capacitor	EC0-MH10A4Z	(50V 0.1uF)
C111	Aluminum Electrolytic Capacitor	SLE25VB47D	(6.3V 470uF)
C112	Aluminum Electrolytic Capacitor	SLE50VB1	(50V 1uF)
C113	Aluminum Electrolytic Capacitor	SLE50VB10	(16V 10uF)
C114	Polypropylene Film Capacitor	EC0-MB10Z4Z	(600V 0.001uF)
C153	Polypropylene Film Capacitor	EC0-MB15Z4Z	(600V 0.0015uF)
C154	Polypropylene Film Capacitor	EC0-MJH15Z4Z	(50V 0.0015uF)
C201	Aluminum Electrolytic Capacitor	SLE16VB22	(16V 22uF)
C202	Aluminum Electrolytic Capacitor	SLE50VBR47	(50V 0.47uF)
C203	Polyester Film Capacitor	EC0-MJH10Z4Z	(50V 0.01uF)
C204	Polyester Film Capacitor	EC0-MJH10Z3Z	(50V 0.01uF)
C205	Polyester Film Capacitor	EC0-MJH15Z4Z	(50V 0.15uF)
C206	Polyester Film Capacitor	EC0-MJH68Z3Z	(50V 0.068uF)
C207	Polyester Film Capacitor	EC0-MJH10A4Z	(50V 0.1uF)
C208	Aluminum Electrolytic Capacitor	SLE16VB22D	(16V 220uF)
C209	Polyester Film Capacitor	EC0-MJH47Z3Z	(50V 0.047uF)
C210	Not Used		
C211	Polyester Film Capacitor	EC0-MJH10Z3Z	(50V 0.01uF)
C212	Polyester Film Capacitor	EC0-MJH10Z3Z	(50V 0.01uF)
C213	Polyester Film Capacitor	EC0-MJH33Z4Z	(50V 0.33uF)
C214	Dipped Mica Capacitor	DM12C 82J13	(300V 820pF)
C215	Polyester Film Capacitor	EC0-MJH10Z3Z	(50V 0.01uF)
C216	Aluminum Electrolytic Capacitor	SLE10VB22D	(10V 220uF)
C217	Polyester Film Capacitor	EC0-MJH10A4Z	(50V 0.1uF)
C218	Aluminum Electrolytic Capacitor	SLE16VB100	(16V 100uF)
C219	Polyester Film Capacitor	EC0-MJH10A4Z	(50V 0.1uF)
C220	Polyester Film Capacitor	EC0-MS47Z4Z	(200V 0.047uF)
C221	Dipped Mica Capacitor	DM15C 10J13	(300V 1000pF)
C222	Ceramic Trimmer Capacitor	ECV-12W40X52H	(4.0-40.0pF)
C223	Polyester Film Capacitor	EC0-MJH68Z3Z	(50V 0.068uF)
C224	Polyester Film Capacitor	EC0-MJH10A4Z	(50V 0.1uF)
C225	Aluminum Electrolytic Capacitor	SLE16VB100	(16V 100uF)
C226	Not Used		
C227	Polyester Film Capacitor	EC0-MJH10A4Z	(50V 0.1uF)
C228	Aluminum Electrolytic Capacitor	SLE16VB100	(16V 100uF)
C229	Aluminum Electrolytic Capacitor	SLE16VB100	(16V 100uF)
C230	Polyester Film Capacitor	EC0-MS47Z4Z	(200V 0.047uF)
C231	Dipped Mica Capacitor	DM12C 39J13	(300V 390pF)
C232	Aluminum Electrolytic Capacitor	SLE50VB10	(50V 10uF)
C233	Aluminum Electrolytic Capacitor	SLE10CVB47	(100V 4.7uF)
C234	Aluminum Electrolytic Capacitor	SLE10CVB100	(100V 100uF)
*C235	Not Used		
C236	Aluminum Electrolytic Capacitor	SLE16VB100	(16V 100uF)
C237	Polyester Film Capacitor	EC0-MJH10A4Z	(50V 0.1uF)
C238	Dipped Mica Capacitor	DM05C 47J13	(300V 47pF)
C239	Polyester Film Capacitor	EC0-MJH10A4Z	(50V 0.1uF)
C240	Polyester Film Capacitor	EC0-MJH10Z4Z	(50V 0.01uF)
C241	Aluminum Electrolytic Capacitor	SLE16VB22D	(16V 220uF)
C242	Dipped Mica Capacitor	DM15C 10J13	(300V 1000pF)
C243	Not Used		
C244	Polyester Film Capacitor	EC0-MS10A4Z	(200V 0.1uF)
C245	Polyester Film Capacitor	EC0-MJH10A4Z	(50V 0.1uF)
C246	Polyester Film Capacitor	EC0-MJH10Z3Z	(50V 0.01uF)
C247	Polyester Film Capacitor	EC0-MJH10Z4Z	(50V 0.001uF)

SYM	PARTS	DESCRIPTION	
C248	Dipped Mica Capacitor	DM05C 470J3	(300V 47pF)
C249	Polyester Film Capacitor	ECQ-M1H222KZ	(50V 0.0022uF)
C301	Aluminum Electrolytic Capacitor	SL16VB100	(16V 100uF)
C302	Polyester Film Capacitor	ECQ-M1H104KZ	(50V 0.1uF)
C303	Aluminum Electrolytic Capacitor	SL16VB22	(16V 22uF)
C304	Polyester Film Capacitor	ECQ-M1H224KZ	(50V 0.22uF)
C305	Polyester Film Capacitor	ECQ-M1H334KZ	(50V 0.33uF)
C306	Aluminum Electrolytic Capacitor	SL16VB22	(16V 22uF)
C307	Aluminum Electrolytic Capacitor	SL16VB47	(16V 47uF)
C308	Aluminum Electrolytic Capacitor	SL100VB10	(100V 10uF)
C309	Polyester Film Capacitor	ECQ-M2102KZ	(200V 0.001uF)
C310	Polypropylene Film Capacitor	DMPP TYPE 0.68uF/400WV	(400V 0.68uF)
C311	Aluminum Electrolytic Capacitor	SL50VB474	(50V 0.47uF)
C312	Polyester Film Capacitor	ECQ-M1H563	(50V 0.056uF)
C313	Aluminum Electrolytic Capacitor	SL50VB3R3	(50V 3.3uF)
C314	Not Used		
C315	Polyester Film Capacitor	ECQ-M224KZ	(200V 0.22uF)
C316	Dipped Mica Capacitor	DM05C 101J3	(300V 100pF)
C317	Polypropylene Capacitor	ECQ-M6153KZ	(600V 0.015uF)
C318	Polypropylene Capacitor	ECQ-M6153KZ	(600V 0.015uF)
C319	Aluminum Electrolytic Capacitor	SL160VB10	(160V 10uF)
C320	Polyester Film Capacitor	ECQ-M2222KZ	(200V 0.0022uF)
C321	Polyester Film Capacitor	ECQ-M1H104KZ	(50V 0.1uF)
C322	Polyester Film Capacitor	ECQ-M1H333KZ	(50V 0.033uF)
C401	Aluminum Electrolytic Capacitor	SL160VB2R2	(160V 2.2uF)
C401	Aluminum Electrolytic Capacitor	SL16VB47	(16V 47uF)
CN1	Connector	PCN6A-10P-2.5DS	
CN2	Connector	PCN6A-22P-2.5DS	
CN3	Connector	PCN6A-15P-2.5DS	
	Heat Sink	SB7	
	Connector Stopper		
	Terminal	TBP-6	

3.DEFLECTION SUB BOARD

SYM	PARTS	DESCRIPTION
TR101	Transistor	2SD1138C/2SD478C
TR102	Transistor	2SC1514
TR103	Transistor	2SC507
TR104	Transistor	2SC507
TR105	Transistor	2SD1138C/2SD478C
TR106	Transistor	2SC507
D101	Diode	1S1835
D102	Diode	1S1835
D103	Diode	V11N
D104	Diode	V11N
D105	Diode	1S1835
D106	Diode	V06C
D107	Diode	RD10E
D108	Diode	V06C
D109	Diode	V11N
D110	Diode	V11N
D111	Diode	1S1835
D112	Diode	1S1835
D113	Varistor	ERZ-15D3K301
VR101	Variable Resistor(Cermet Type)	GFP-061 200K ohm B
VR102	Variable Resistor(Cermet Type)	GFP-061 2K ohm B
R101	Tantalum Thin Film Resistor	RTL2-75K ohm J(2W 75K ohm)
R102	Tantalum Thin Film Resistor	RTL2-75K ohm J(2W 75K ohm)
R103	Carbon Composition Resistor	ERC-12GJ514 (1/2W 510K ohm)
R104	Carbon Composition Resistor	ERC-12GJ514 (1/2W 510K ohm)
R105	Carbon Composition Resistor	ERC-12GJ104 (1/2W 100K ohm)
R106	Carbon Composition Resistor	ERC-12GJ274 (1/2W 270K ohm)
R107	Carbon Film Fixed Resistor	ERD-25VJ104 (1/4W 100K ohm)
R108	Carbon Film Fixed Resistor	ERD-25VJ474 (1/4W 470K ohm)
R109	Carbon Film Fixed Resistor	ERD-25VJ913 (1/4W 91K ohm)
※R110	Not Used	
R111	Carbon Film Fixed Resistor	ERD-25VJ223 (1/4W 22K ohm)
R112	Carbon Film Fixed Resistor	ERD-25VJ223 (1/4W 22K ohm)
R113	Carbon Film Fixed Resistor	ERD-25VJ562 (1/4W 5.6K ohm)
R114	Carbon Film Fixed Resistor	ERD-25VJ333 (1/4W 33K ohm)
R115	Carbon Film Fixed Resistor	ERD-25VJ101 (1/4W 100 ohm)
R116	Carbon Film Fixed Resistor	ERD-25VJ104 (1/4W 100K ohm)
R117	Tantalum Thin Film Resistor	RTL2-510K ohm J(2W 510K ohm)
R118	Tantalum Thin Film Resistor	RTL2-510K ohm J(2W 510K ohm)
R119	Carbon Film Fixed Resistor	ERD-50VJ100 (1/2W 10 ohm)
R120	Carbon Composition Resistor	ERC-12GJ124 (1/2W 120K ohm)
R121	Carbon Film Fixed Resistor	ERD-25VJ102 (1/4W 1K ohm)
R122	Carbon Film Fixed Resistor	ERD-25VJ822 (1/4W 8.2K ohm)
R123	Carbon Film Fixed Resistor	ERD-25VJ332 (1/4W 3.3K ohm)
C101	Aluminum Electrolytic Capacitor	SL25VB100 (25V 100uF)
C102	Aluminum Electrolytic Capacitor	SL25VB100 (25V 100uF)
C103	Aluminum Electrolytic Capacitor	SL160VB33 (160V 33uF)
C104	Not Used	
C105	Not Used	
C106	Polyester Film Capacitor	TH 0.1uF/2000V (2KV 0.1uF)
C107	Ceramic Capacitor	DD6400YZ104P1KV(1KV 0.1uF)
C108	Polyester Film Capacitor	ECQ-M2473KZ (200V 0.047uF)
C109	Aluminum Electrolytic Capacitor	160VB47 (160V 47uF)
※C110	Dipped Mica Capacitor	DM12YC471J3 (300V 470pF)

SYM	PARTS	DESCRIPTION
※C111	Polyester Film Capacitor	ECQ-M2222KZ (200V 0.0022uF)
C112	Polyester Film Capacitor	ECQ-E2335KZ (200V 3.3uF)
C113	Oil Polyester Capacitor	ECQ-D15H222M (1.5KV 0.0022uF)
C114	Oil Polyester Capacitor	ECQ-D15H222M (1.5KV 0.0022uF)
C115	Polyester Film Capacitor	TH 0.1uF/2000V(2KV 0.1uF)
C116	AluminumElectrolytic Capacitor	SL50VB47 (50V 47uF)
C117	Polyester Film Capacitor	ECQ-M4474KZ (400V 0.47uF)
C118	Aluminum Electrolytic Capacitor	SL100VB47 (100V 47uF)
CN4	Connector	PCN6A-22P-2.5DS
CN5	Connector	PCN6A-22P-2.5DS
	Connector Stopper	
	Terminal	TBP-6

4.POWER BOARD

SYM	PARTS	DESCRIPTION	
TR1	Transistor	2SD1138 C/2SD478C	
TR2	Transistor	2SC1815Y	
TR3	Transistor	2SC1815Y	
TR4	Transistor	2SC1815Y	
TR5	Transistor	2SD476K	
TR6	Transistor	2SC1815Y	
TR7	Transistor	2SA1015Y	
TR8	Transistor	2SD476K	
TR9	Transistor	2SC1815Y	
TR10	Transistor	2SA1015Y	
D1	Diode	U-05G	
D2	Diode	U-05G	
D3	Diode	U-05G	
D4	Diode	U-05G	
D5	Diode	V06C	
D6	Diode	V06C	
D7	Diode	V06C	
D8	Diode	HZ7B	
D9	Diode	MA26W	
D10	Diode	V06C	
D11	Diode	V06C	
D12	Diode	V06C	
D13	Diode	U-05G	
D14	Diode	U-05G	
D15	Diode	U-05G	
D16	Diode	U-05G	
D17	Diode	HZ7B	
D18	Diode	MA26W	
D19	Diode	V06C	
D20	Diode	V06C	
D21	Diode	U-05G	
D22	Diode	U-05G	
D23	Diode	U-05G	
D24	Diode	U-05G	
D25	Diode	HZ7B	
D26	Diode	MA26W	
D27	Diode	V06C	
D28	Diode	V06C	
VR1	Variable Resistor(Cermet Type)	GFP-061 500 ohm B	
VR2	Variable Resistor(Cermet Type)	GFP-061 1K ohm B	
VR3	Variable Resistor(Cermet Type)	GFP-061 1K ohm B	
R1	Fixed Wirewound Resistor	ERF-7MRK1R2	(7W 1.2 ohm)
R2	Carbon Film Fixed Resistor	ERD-50VJ101	(1/2W 100 ohm)
R3	Carbon Film Fixed Resistor	ERD-50VJ102	(1/2W 1K ohm)
R4	Fixed Wirewound Resistor	ERF-2RK1R0	(2W 1 ohm)
R5	Fixed Wirewound Resistor	ERF-2RK1R0	(2W 1 ohm)
R6	Fixed Wirewound Resistor	ERF-2RK1R0	(2W 1 ohm)
R7	Carbon Film Fixed Resistor	ERD-50VJ202	(1/2W 2K ohm)
R8	Carbon Film Fixed Resistor	ERD-50VJ124	(1/2W 120K ohm)
R9	Metal Oxide Film Foxed Resistor	ERG-1AVJ183	(1W 18K ohm)
R10	Metal Oxide Film Fixed Resistor	ERG-1AVJ183	(1W 18K ohm)
R11	Metal Oxide Film Fixed Resistor	ERG-2AVJ562	(2W 5.6K ohm)
R12	Metal Oxide Film Fixed Resistor	ERG-2AVJ562	(2W 5.6K ohm)
R13	Carbon Film Fixed Resistor	ERD-50VJ101	(1/2W 100 ohm)
R14	Carbon Film Fixed Resistor	ERD-50VJ222	(1/2W 2.2K ohm)
R15	Metal Oxide Film Fixed Resistor	ERG-1AVJ333	(1W 33K ohm)

SYM	PARTS	DESCRIPTION	
*R16	Carbon Film Fixed Resistor	ERD-50VJ394	(1/2W 390K ohm)
R17	Fixed Wirewound Resistor	ERF-5SJ750	(5W 75 ohm)
R18	Carbon Film Fixed Resistor	ERD-50VJ102	(1/2W 1K ohm)
R19	Carbon Film Fixed Resistor	ERD-50VJ101	(1/2W 100 ohm)
R20	Carbon Film Fixed Resistor	ERD-50VJ330	(1/2W 33 ohm)
R21	Carbon Film Fixed Resistor	ERD-50VJ681	(1/2W 680 ohm)
R22	Carbon Film Fixed Resistor	ERD-50VJ821	(1/2W 820 ohm)
R23	Carbon Film Fixed Resistor	ERD-50VJ102	(1/2W 1K ohm)
R24	Fixed Wirewound Resistor	ERF-5SJ750	(5W 75 ohm)
R25	Carbon Film Fixed Resistor	ERD-50VJ102	(1/2W 1K ohm)
R26	Carbon Film Fixed Resistor	ERD-50VJ101	(1/2W 100 ohm)
R27	Carbon Film Fixed Resistor	ERD-50VJ330	(1/2W 33 ohm)
R28	Carbon Film Fixed Resistor	ERD-50VJ681	(1/2W 680 ohm)
R29	Carbon Film Fixed Resistor	ERD-50VJ821	(1/2W 820 ohm)
R30	Carbon Film Fixed Resistor	ERD-50VJ102	(1/2W 1K ohm)
R31	Not Used		
R32	Carbon Film FIxed Resistor	ERD-50VJ562	(1/2W 5.6K ohm)
R33	Fixed Wirewound Resistor	ERF-2RK1RO	(2W 1 ohm)
R34	Fixed Wirewound Resistor	ERF-2RK1RO	(2W 1 ohm)
TH1	PTC Theramistor	ERP-F5BOM100F	(10 ohm)
C1	Aluminum Electrolytic Capacitor	200VRSN470	(200V 470uF)
C2	Aluminum Electrolytic Capacitor	160VB2R2	(160V 2.2uF)
C3	Aluminum Electrolytic Capacitor	160T100	(160V 100uF)
C4	Aluminum Electrolytic Capacitor	SL16T330	(16V 330uF)
C5	Aluminumelectrolytic Capacitor	25VRSN4700	(25V 4700uF)
C6	Polyester Film Capacitor	ECQ-M05103KZ	(50V 0.01uF)
C7	AluminumElectrolytic Capacitor	SL50VB10	(50V 10uF)
C8	Aluminum Electrolytic Capacitor	SL25VB100	(25V 100uF)
C9	Aluminum Electrolytic Capacitor	25VRSN4700	(25V 4700uF).
C10	Polyester Film Capacitor	ECQ-M05103KZ	(50V 0.01uF)
C11	Aluminum Electrolytic Capacitor	SL50VB10	(50V 10uF)
C12	Aluminum Electrolytic Capacitor	SL25VB100	(25V 100uF)
CN1	Connector	PCN6A-15P-2.5DS	
CN2	Connector	PCN6A-10P-2.5DS	
CN3	Connector	PCN6A-22P-2.5DS	
	Connector Stopper		
	Terminal	TBP-6	
	Heat Sink	M4-903427	

6.DEFLECTION UNIT

SYM	PARTS	DESCRI TION	
TR1	Transistor	2SD784	
TR2	Transistor	2SD1138C/2SD478C	
TR3	Transistor	2SC1413A	
TR4	Transistor	2SD1138C/2SD478C	
TR5	Transistor	2SD1138C/2SD478C	
TR6	Transistor	2SD1138C/2SD478C	
D1	Diode	TD15	
D2	Diode	TD15	
T1	Horizontal Output Transformer	ST-9381A	
T2	High Voltage Output Transformer	ST-9427	
MF1	High Voltage Rectifier Block	ST-9370-B	
VR1	Variable Resistor	EVM-R7G-S20B17	
VR2	Variable Resistor	HR1211 10SB 50 ohm	
VR3	Variable Resistor	HR1211 10SB 1K ohm	
R1	Fixed Wirewound Resistor	ERF-10BLK331	(10W 330 ohm)
R2	Fixed Wirewound Resistor	ERF-10BLK102	(10w 1K ohm)
R4	Fixed Wirewound Resistor	ERF-2RJ5R1	(2W 5.1 ohm)
R5	Fixed Wirewound Resistor	ERF-2RJ5R1	(2W 5.1 ohm)
C1	Polyester Film Capacitor	ECQ-E2E304KZ	(0.3uF 250V)
C2	Oil Polyester Capacitor	ECQ-D15H822M	(0.0082uF 1.5KV)
C3	Oil Polyester Capacitor	ECQ-D15H822M	(0.0082uF 1.5KV)
C4	Aluminum Electrolytic Capacitor	SL160VB47	(47uF 160V)
CN1	Connector	PCN6A-10S-2.5C	
CN2	Connector	PCN6A-22S-2.5C	
CN3	Connector	PCN6A-15S-2.5C	
CN4	Connector	PCN6A-22S-2.5C	
CN5	Connector	PCN6A-22S-2.5C	
CN915	Connector	1-350242-0(9P)	
CN916	Connector	1-350238-0(20P)	
CN917a	Connector	1951(1P)	
P1	Connector	1-480349-0	
P2	Connector	1-480349-0	
	Color Terminal Board	CH-8P	
	Color Terminal Board	CV-1P	
	Connector Contact	PCN6-2226SC	
	Connector Contact	1381	
	Connector Contact	350037-1	
	Connector Contact	350036-1	
	Connector Contact	60617-5	

7.MAIN CHASSIS

SYM	PARTS	DESCRIPTION
L1	Deflection York	MEL-5520B
S1	Toggle Switch	WD-1011-9
VR1	Variable Resistor	RV24YN20SB 5K ohm
C1	Polyester Film Capacitor	ECQ-E2A104KZ (0.1uF 200V)
R1	Carbon Film Fixed Resistor	ERD-50TJ203 (1/2W 20K ohm)
V1	CRT	DS2019CEB※
CN901	Connector	1360P(03-09-2121)
CN914	Connector	1-350238-0(20P)
CN915	Connector	1-350235-0(9P)
CN916	Connector	1-350245-0(20P)
	Color Terminal	CS-1P
	Power Cord(with plug)	(KP-30,KS-16) 8 feet
	Knobe	MSA22S(gray)
	Connector Contact	350036-1
	Connector Contact	350037-1

SYM	PARTS	DESCRIPTION	
CN904	BNC Connector	P/N 31-010	
CN905	BNC Connector	P/N 31-010	
CN908	BNC Connector	P/N 31-010	
CN909	BNC Connector	P/N 31-010	
S2	Toggle Switch	ST-1106D	
S4	Toggle Switch	ST-1106D	
R4	Carbon Film Fixed Resistor	ERO-50CKF75RO	(1/2W 75 ohm)
R6	Carbon Film Fixed Resistor	ERO-50CKF75RO	(1/2W 75 ohm)

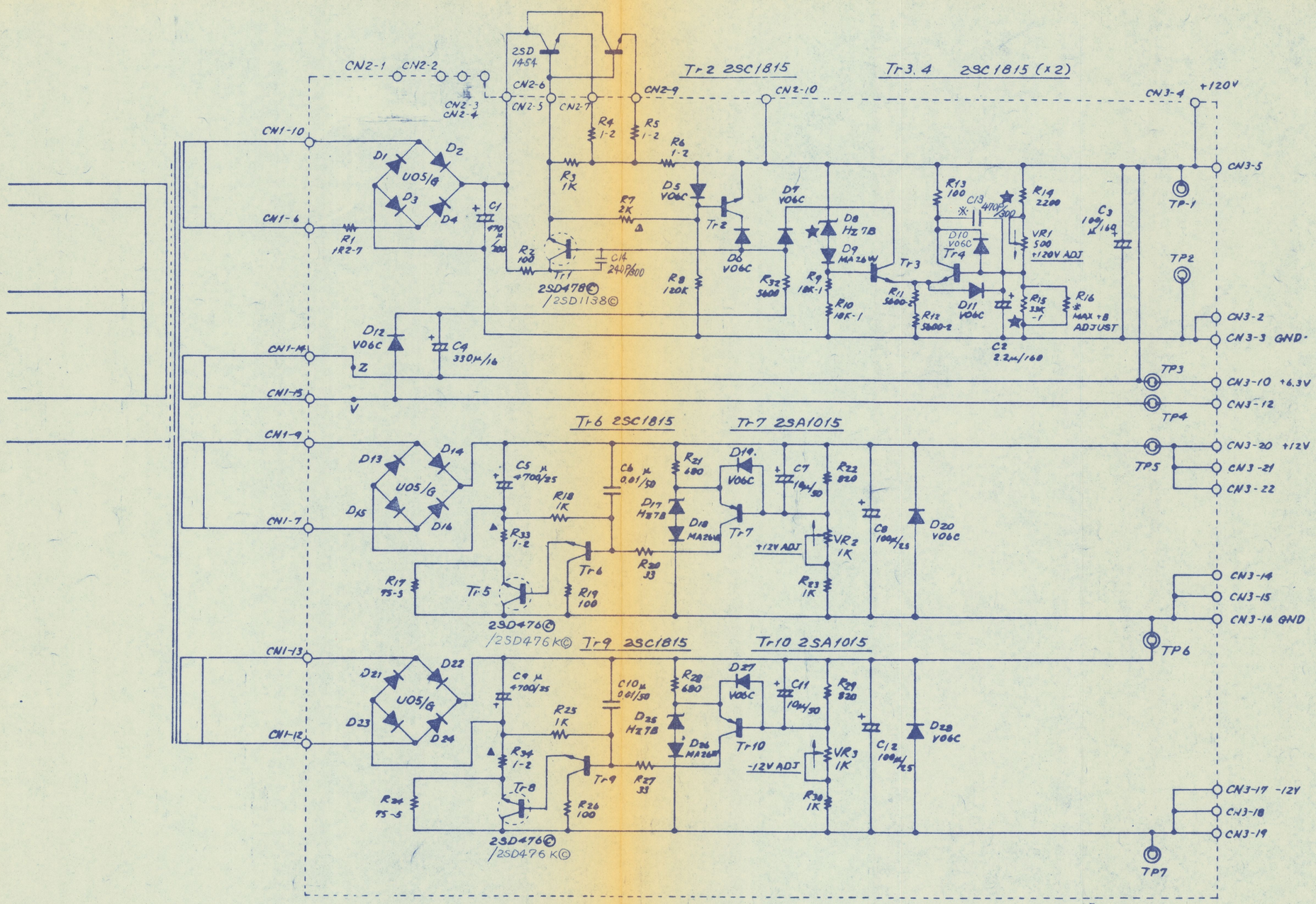
9.CRT SOKET BOARD

SYM	PARTS	DESCRIPTION	
V1a	CRT Soket	X-B0834	
VR1	Variable Resistor	RVC1417-BLN001B100K ohm	
R1	Carbon Composition Resistor	ERC-12GJ104	(1/2W 100K ohm)
R2	Carbon Composition Resistor	ERC-12GJ104	(1/2W 100K ohm)
R3	Carbon Film Fixed Resistor	ERD-50TJ913	(1/2W 91K ohm)
R4	Carbon Film Fixed Resistor	ERD-50TJ101	(1/2W 100 ohm)
R5	Carbon Film Fixed Resistor	ERD-50TJ203	(1/2W 20K ohm)
C1	Ceramic Capacitor	GC01-103YZB	(1KV 0.01uF)
C2	Ceramic Capacitor	GC01-103YZB	(1KV 0.01uF)
C3	Polypropylene Capacitor	DMPP 0.47u/400V	(0.47u 400V)
C4	Polypropylene Capacitor	DMPP 0.47u/400V	(0.47u 400V)
D1	Diode	V06C	
SG1	Spark Gap	T08-230B	
SG2	Spark GAP	T08-230B	
CN917B	Connector	1951R	
K	Connector	1-480349-0	
	Connector Contact	1380	
	Connector Contact	60617-5	
	CRT Soket Cover	M4-903378	

915 916

11.VIDEO POWER UNIT

SYM	PARTS	DESCRIPTION
TR1	Transistor	2SD748A
TR2	Transistor	2SD748A
T1	Power Transformer	ST-9375C
F1	Fuse	MGC-4A
F1a	Fuse Holder	S1-7221-09
CN1	Connector	PCN6A-15S-2.5C
CN2	Connector	PCN6A-10S-2.5C
CN3	Connector	PCN6A-22S-2.5C
CN4	Connector	PCN6A-10S-2.5C
CN5	Connector	PCN6A-10S-2.5C
CN6	Connector	PCN6A-15S-2.5C
CN901	Connectir	1360R2(03-09-1125)
CN902	Connector	CM-3
CN914	Connector	1-350245-0(20P)
TR1a	Transistor Socket	S2-112W-06
TR2a	Transistor Socket	S2-112W-06
	Connector Contact	PCN6-2226SC
CN901	Connector Contact	1381
CN914	Connector Contact	350037-1



NOTES:

1. ALL RESISTORS IN OHMS ± 5% AND ARE RATED ½ WATT UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITORS IN FARADS/WV UNLESS OTHERWISE SPECIFIED.
3. ★ MARKS ARE CRITICAL COMPONENTS FOR X-RADIATION.

材料 MATERIAL		承認 APPROVED BY	
処理 FINISH		承認 APPROVED BY	Apr. 28 '77
数量 QUANTITY		検図 CHECKED BY	Apr. 27 '77
第3角法 3RD ANGLE PROJECTION	SCALE /	UNITS mm	製図 DRAWN BY
			設計 DESIGNED BY

変更 REV △

MODEL DM516H
DISPLAY MONITOR
POWER BOARD
SCHEMATIC DIAGRAM

TITLE

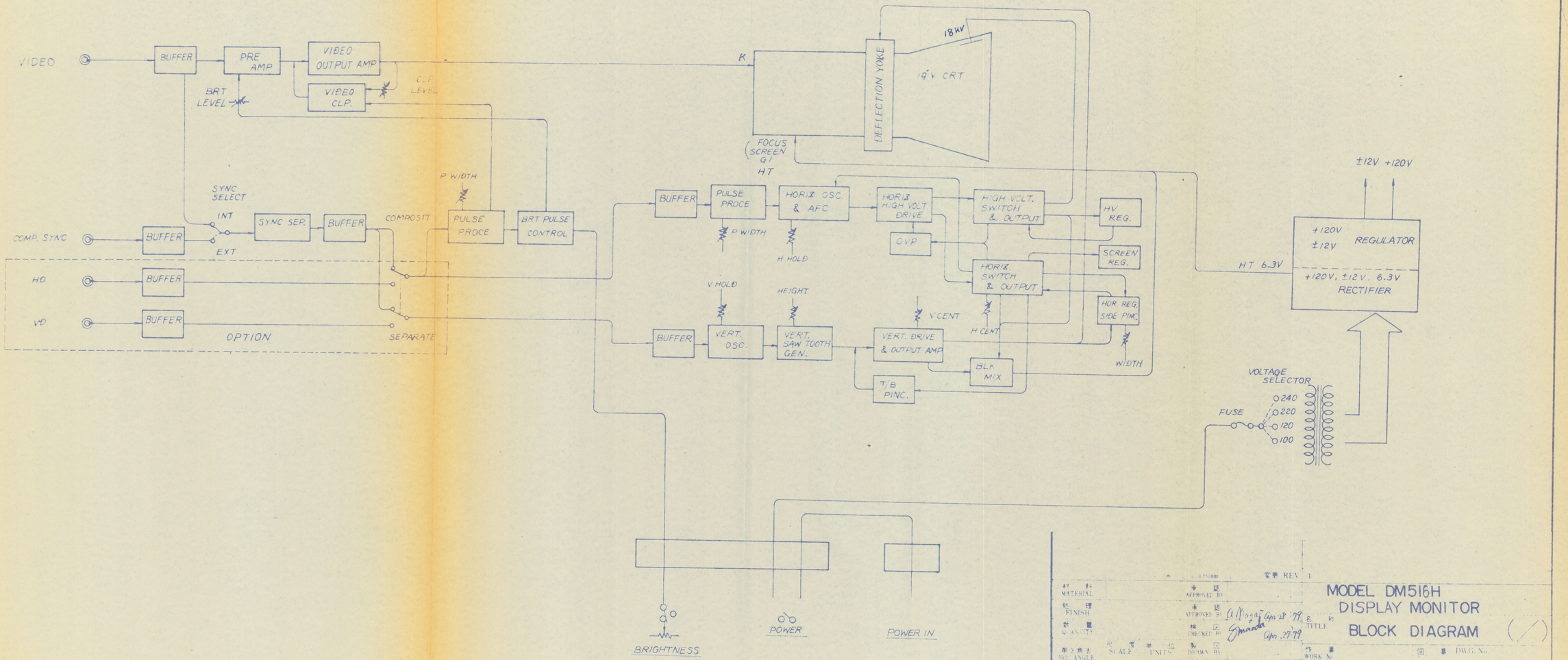
作番 WORK No.

DWG No C3-901612

IKEGAMI TSUSHINKI CO., LTD.

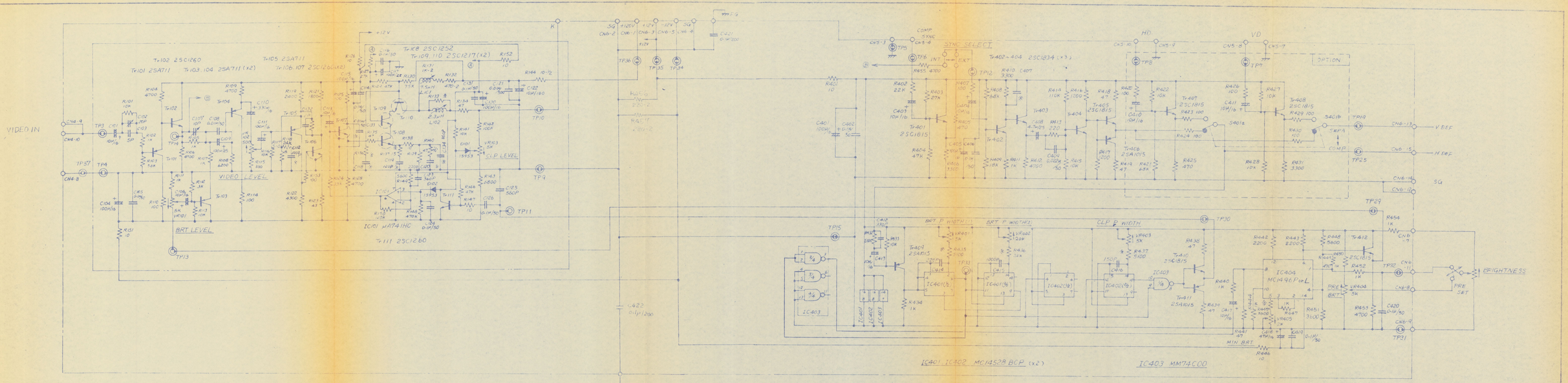
取説用

SCHEMATIC DIAGRAM
POWER BOARD
DISPLAY MONITOR
MODEL CM1914



MATERIAL	APPROVED BY	REV 1	MODEL DM516H
FINISH	APPROVED BY		DISPLAY MONITOR
QUANTITY	CHECKED BY	TITLE	BLOCK DIAGRAM
3RD ANGLE PROJECTION	SCALE / UNITS mm	DRAWN BY / DESIGN BY	WORK No. / DWG No. C21-901616

REGAL TSUSHIN CO.,LTD.



NOTES:

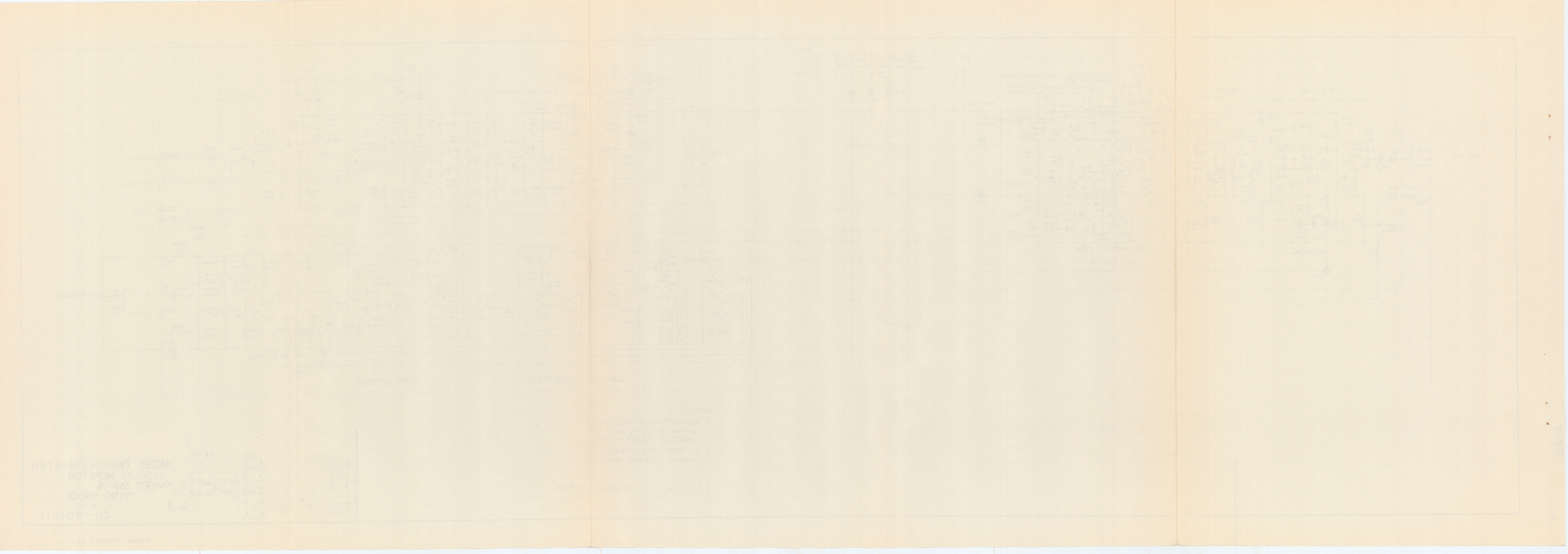
1. ALL RESISTORS IN OHMS ± 5% AND ARE RATED ¼ WATT UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITORS IN FARADS / WV UNLESS OTHERWISE SPECIFIED.
3. [ ] CIRCUIT IS AVAILABLE BY OPTION.

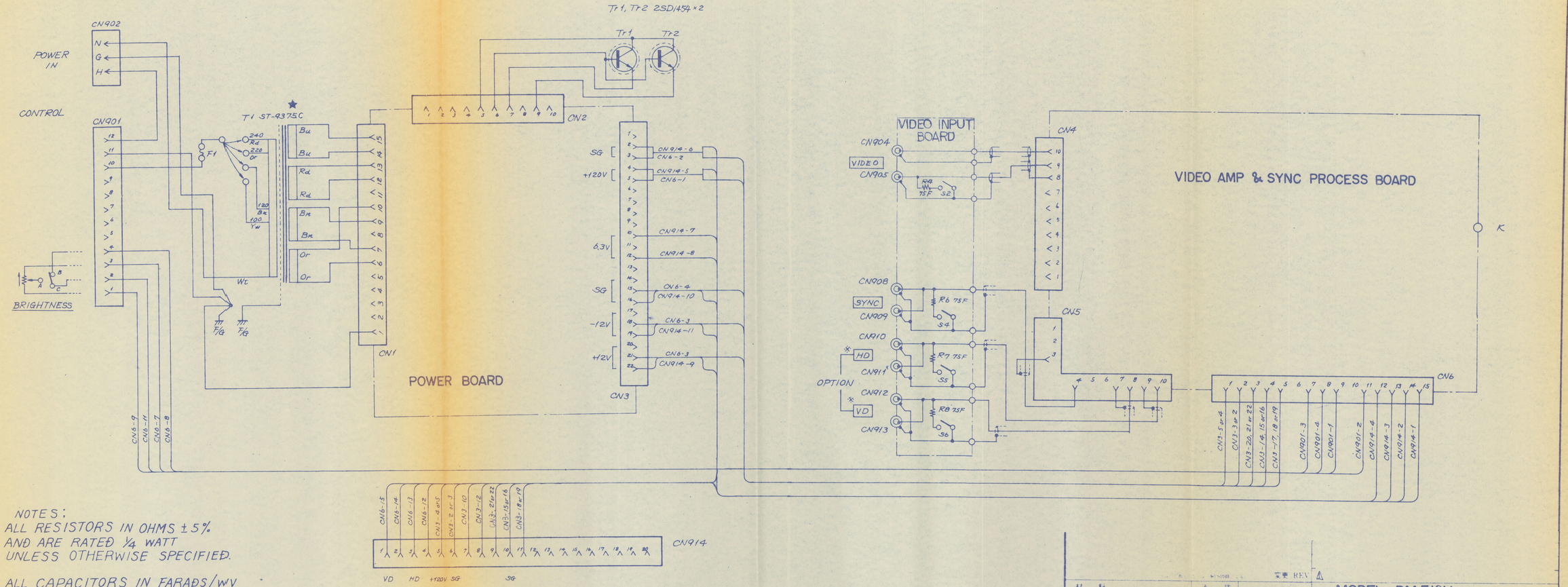
MATERIAL		APPROVED BY	
FINISH		APPROVED BY	Apr 28 '77
QUANTITY		CHECKED BY	Apr 21 '77
SCALE	UNITS	DRAWN BY	
ANGLE PROJECTION		DESIGNED BY	

MODEL DM516H, DM-376H
DISPLAY MONITOR
VIDEO AMP & SYNC PROCE

DWG. NO. C11-901611-

IKEGAMI TSUSHINKI CO. LTD.



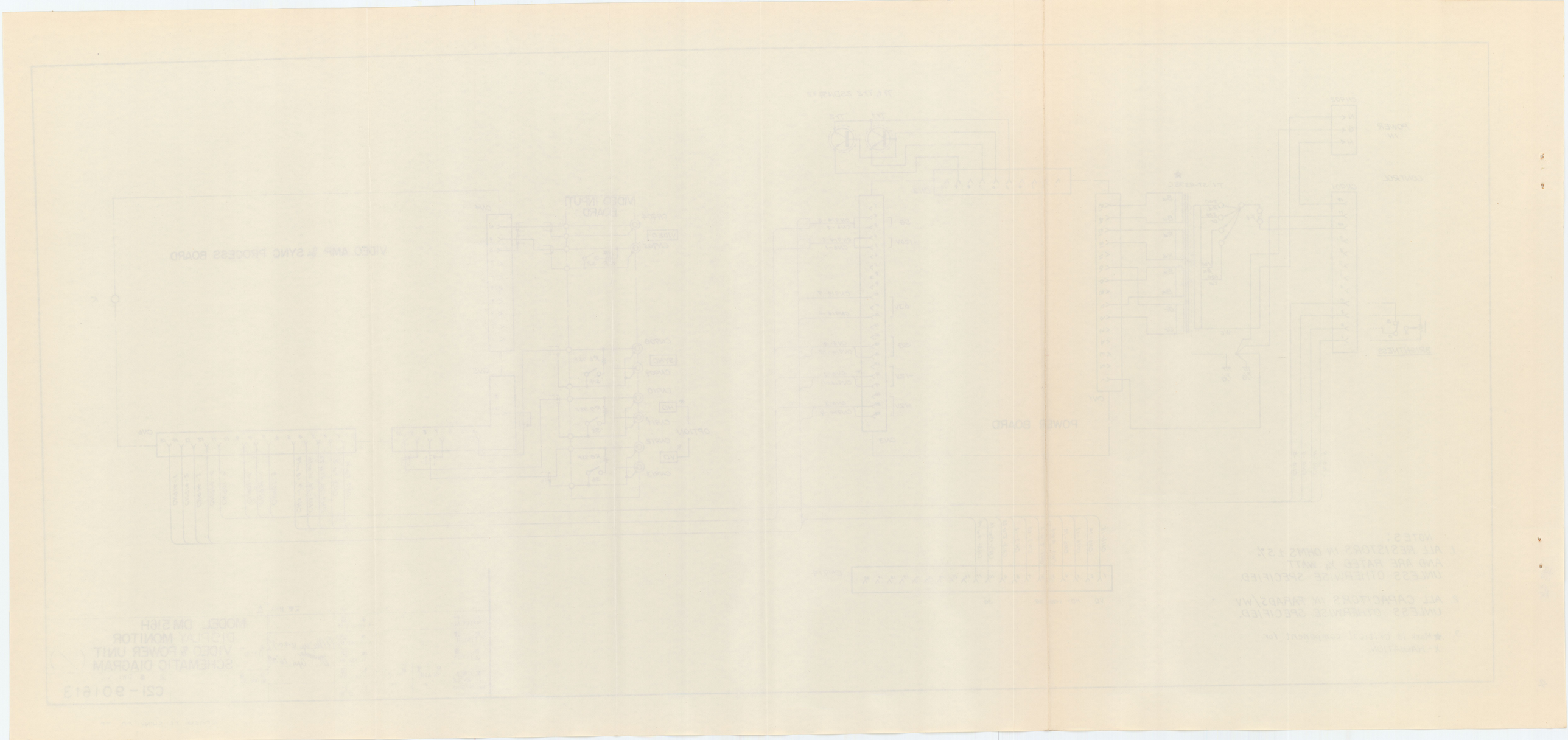


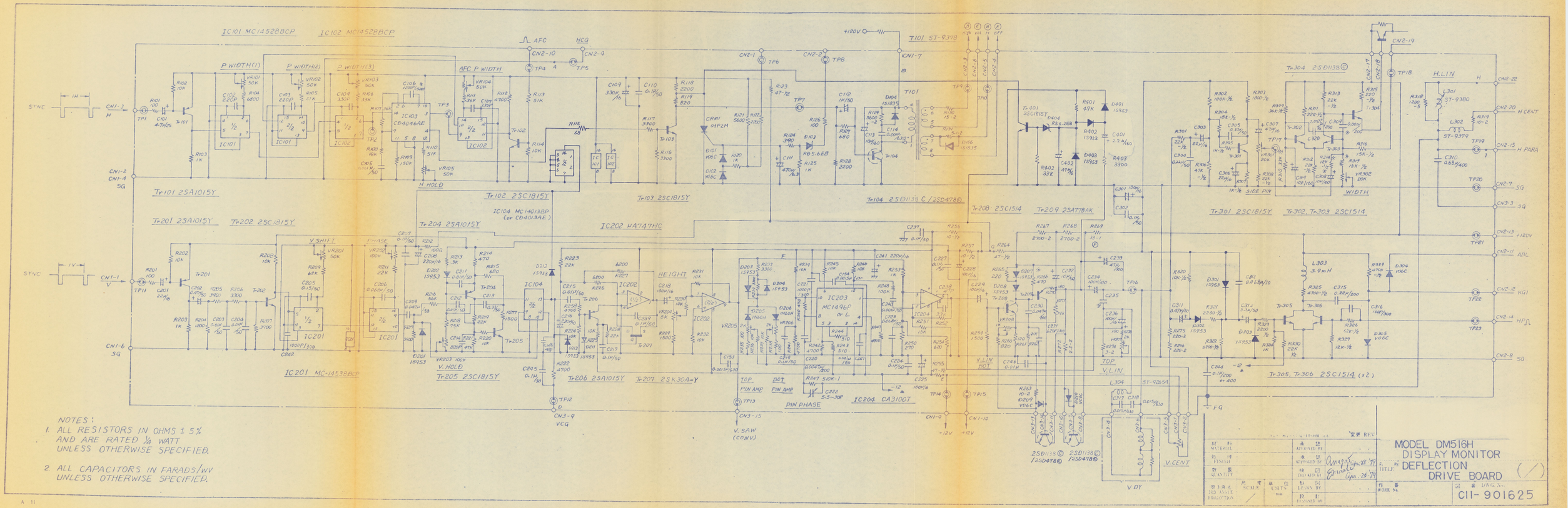
NOTES:

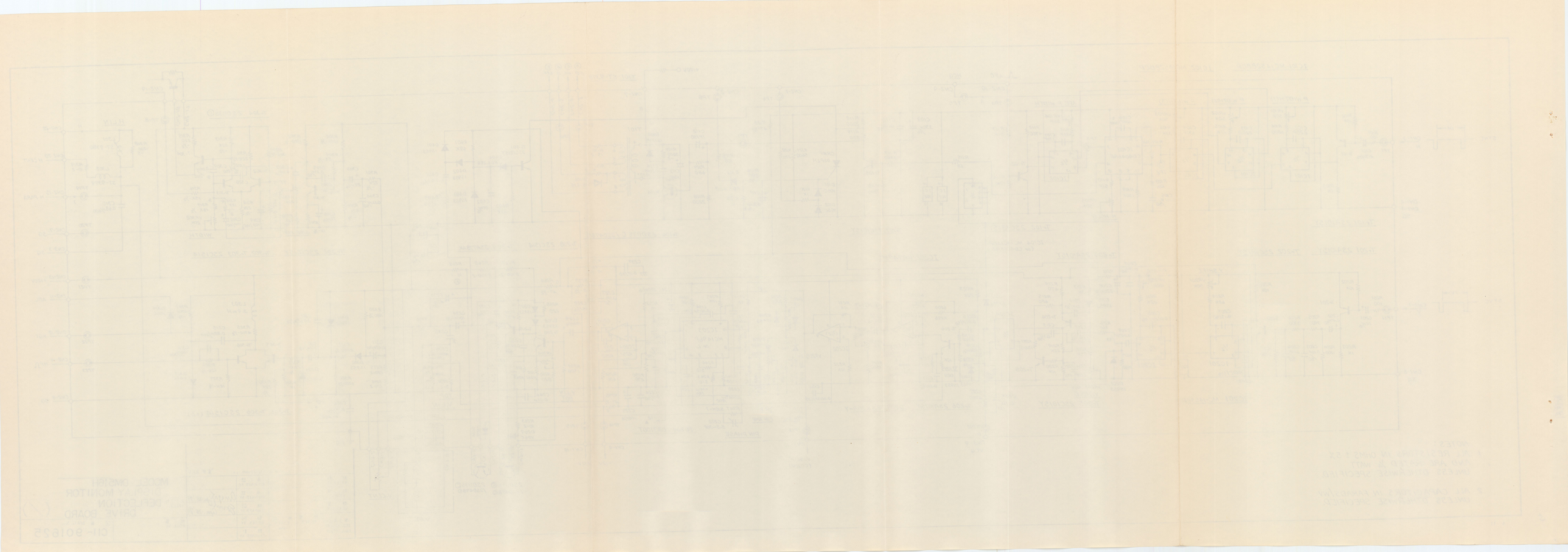
1. ALL RESISTORS IN OHMS ±5% AND ARE RATED ¼ WATT UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITORS IN FARADS/WV UNLESS OTHERWISE SPECIFIED.
3. ★Mark is critical component for X-RADIATION.

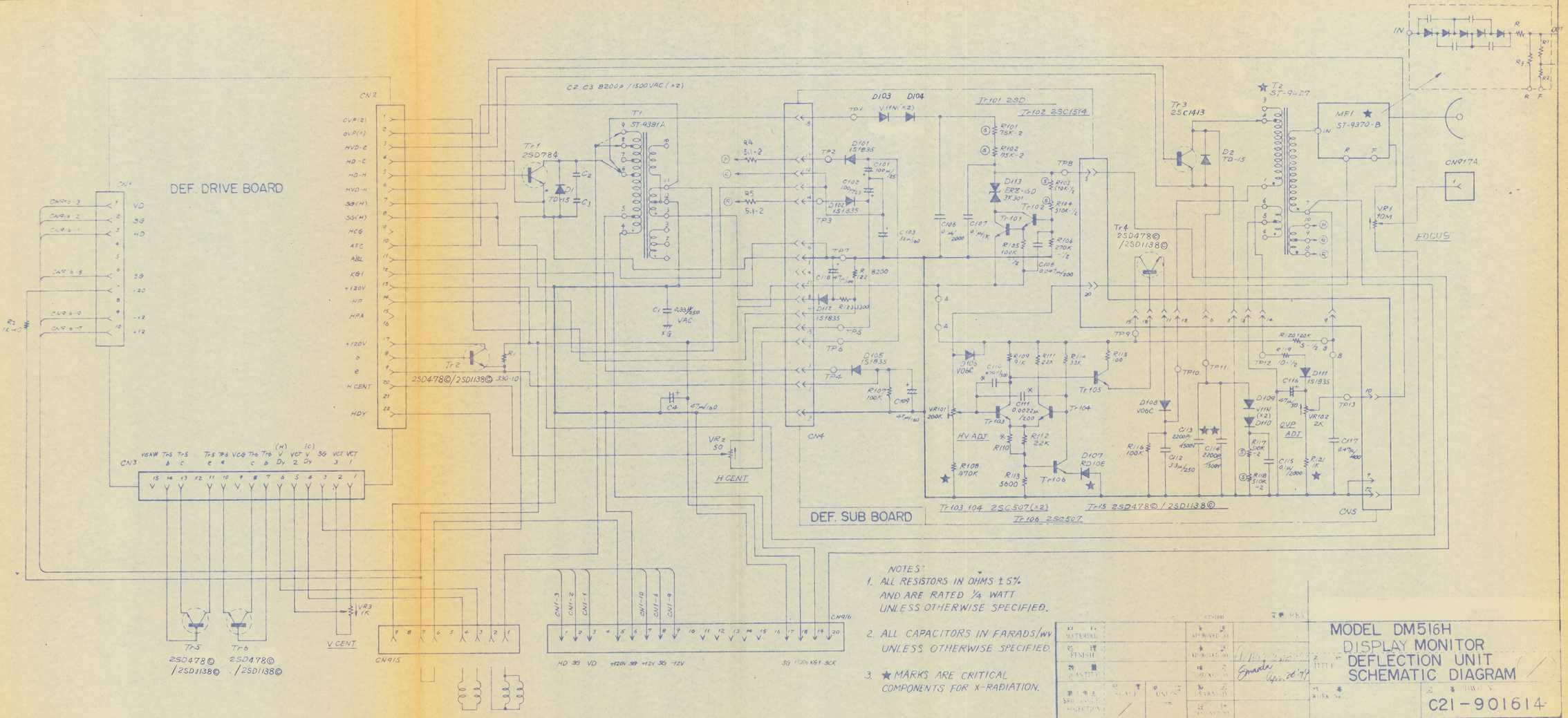
MATERIAL		APPROVED BY	REV
FINISH		APPROVED BY	A Nagai 4-20-79
QUANTITY		CHECKED BY	Tanaka Apr. 26 '79
3rd ANGLE PROJECTION	SCALE / UNITS mm	DRAWN BY	TITLE: MODEL DM516H DISPLAY MONITOR VIDEO & POWER UNIT SCHEMATIC DIAGRAM
		DESIGNED BY	WORK No.
			DWG No. C21-901613

IKEGAMI TSUSHINKI CO., LTD.




IC101 MC14528BCP
IC102 MC14528BCP
P WIDTH(1)
P WIDTH(2)
P WIDTH(3)
AFC P WIDTH
AFC
HCG
CN2-10
CN2-9
TP4
TP5
IC103 CD4046AE
IC101
IC102
H HOLD
SYNC
1H
CN1-3
H
CN1-2
CN1-4
5G
Tr101 2SA1015Y
Tr102 2SC1815Y
IC104 MC14013BP (or CD4013AE)
Tr103 2SC1815Y
Tr104 2SD1138 C / 2SD478 C
+120V
T101 ST-9378
CN1-7
TP6
TP8
TP7
TP9
TP10
Tr208 2SC1514
Tr209 2SA778AK
Tr301 2SC1815Y
Tr302, Tr303 2SC1514
Tr304 2SD1138 C
H.LIN
WIDTH
SIDE PIN
L301 ST-9380
L302 ST-9379
CN2-19
TP18
CN2-22
CN2-20
H CENT
CN2-15
H PARA
TP19
TP20
CN2-7
SG
CN3-3
SG
CN2-13
+120V
TP21
CN2-11
ABL
CN2-12
KG1
TP22
CN2-14
HFΩ
TP23
CN2-8
SG
Tr305, Tr306 2SC1514 (x2)
L303 3.9mH
L304 ST-9265A
V.LIN HOT
V.LIN TOP
V.CENT
V DY
FQ
2SD1138 C / 2SD478 C
IC201 MC-14538BCP
SYNC
1V
CN1-1
V
CN1-6
5G
Tr201 2SA1015Y
Tr202 2SC1815Y
Tr204 2SA1015Y
IC202 UA747HC
Tr205 2SC1815Y
Tr206 2SA1015Y
Tr207 2SK30A-Y
V SHIFT
PHASE
HEIGHT
V.HOLD
IC203 MC1496P or L
IC204 CA3100T
TOP PIN AMP
BOT PIN AMP
PIN PHASE
V. SAW (CONV)
CN3-15
CN3-9
VCG
-12V
CN1-9
CN1-10
TP11
TP12
TP13
TP14
TP15
TP16
TP17
NOTES:
1. ALL RESISTORS IN OHMS ± 5% AND ARE RATED ⅛ WATT UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITORS IN FARADS/WV UNLESS OTHERWISE SPECIFIED.
MODEL DM516H
DISPLAY MONITOR
DEFLECTION DRIVE BOARD
DWG. No.
CII-901625
IKEGAMI TSUSHINKI CO.,LTD.





NOTES:

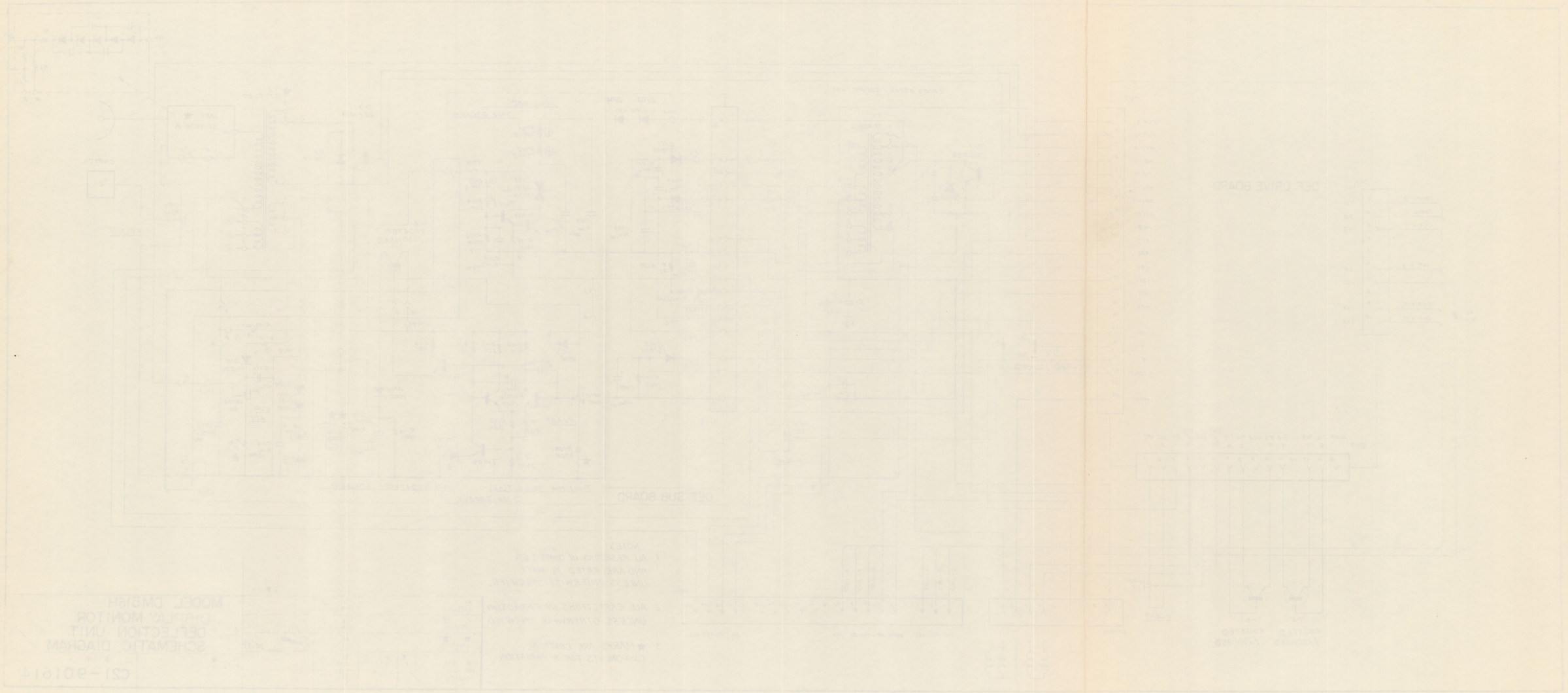
1. ALL RESISTORS IN OHMS ±5% AND ARE RATED 1/4 WATT UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITORS IN FARADS/WV UNLESS OTHERWISE SPECIFIED.
3. ★ MARKS ARE CRITICAL COMPONENTS FOR X-RADIATION.

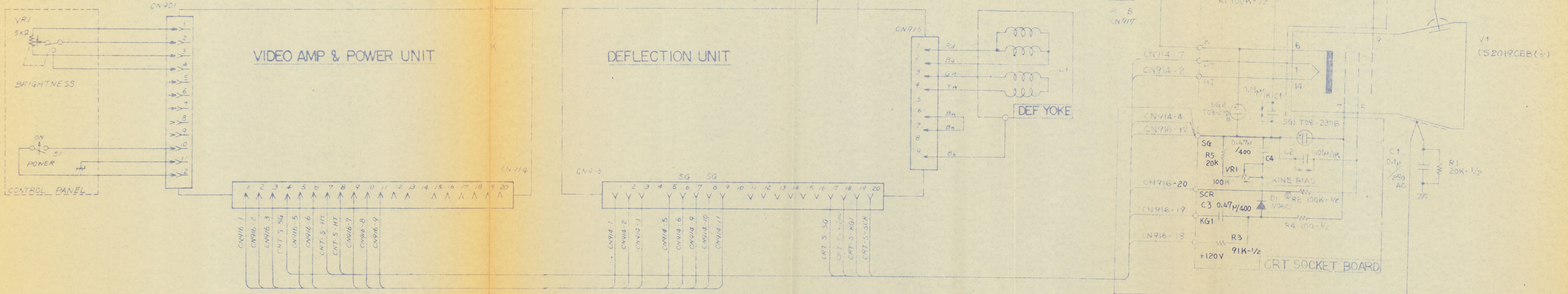
MATERIAL		APPROVED	
FINISH		CHECKED	
QUANTITY		DRAWN	
SEE PARTS LIST FOR DETAILS	SCALE / UNITS mm	DESIGNED	

MODEL DM516H
DISPLAY MONITOR
DEFLECTION UNIT
SCHEMATIC DIAGRAM

DRAWING NO. C21-901614

IKEGAMI TSUSHINKI CO. LTD

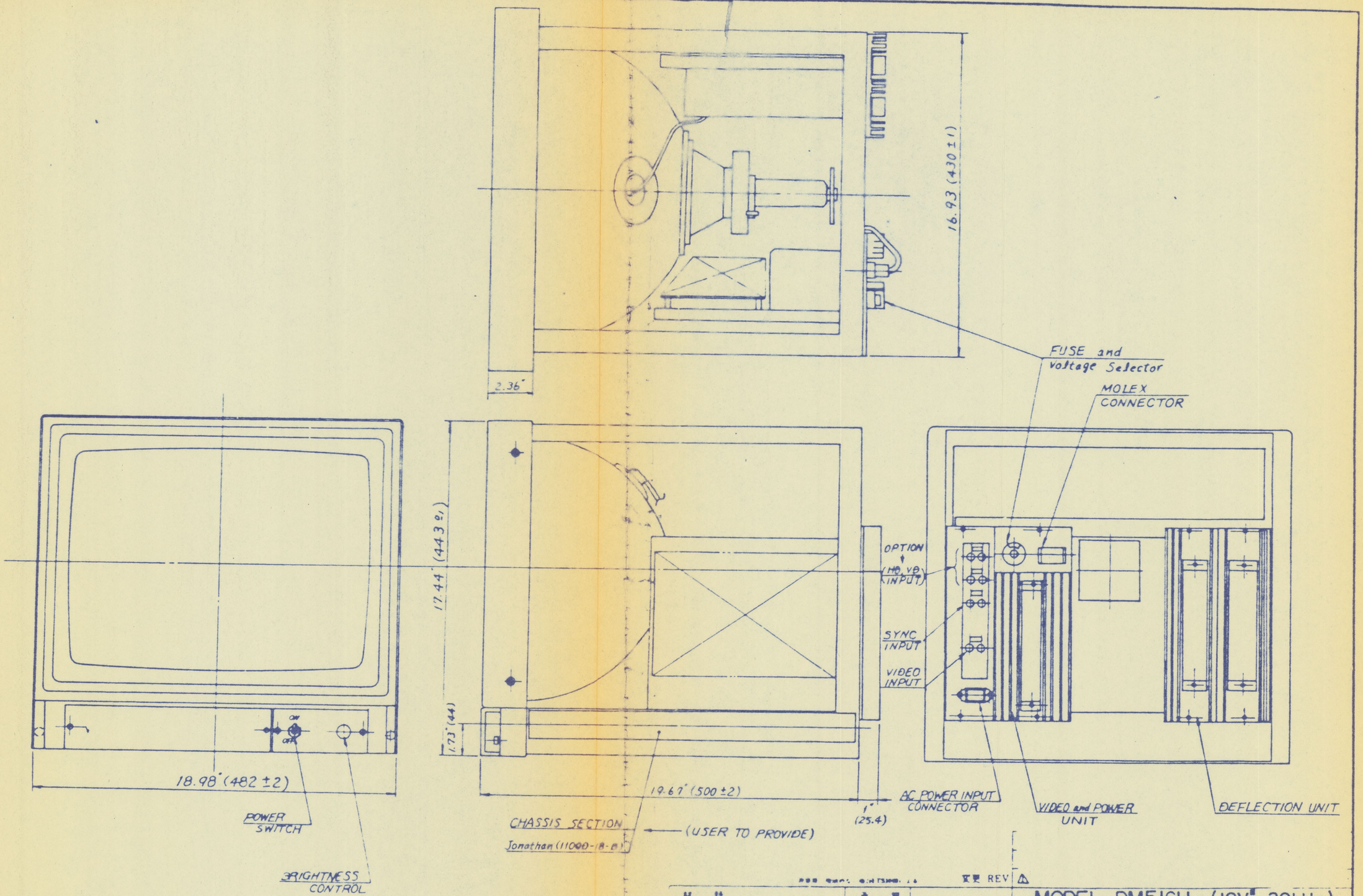




NOTES;
1. ALL RESISTORS IN OHMS ±5% AND ARE RATED ¼ WATT UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITORS IN FARADS/WV UNLESS OTHERWISE SPECIFIED.

MATERIAL			APPROVED BY		MODEL DM516H DISPLAY MONITOR
FINISH			APPROVED BY	11 Jan 79	MAIN CHASSIS SCHEMATIC DIAGRAM
QUANTITY			CHECKED BY	26 '79	
3RD ANGLE PROJECTION	SCALE	UNLESS mm	DRAWN BY		DWG. No. C21-901615
			DESIGNED BY		

IKEGAMI TSUSHINKI CO. LTD



MATERIAL	APPROVED BY	
FINISH	APPROVED BY	Apr 26 '79
QUANTITY	CHECKED BY	Apr 26 '79
3RD ANGLE PROJECTION	SCALE / UNITS mm	DRAWN BY
		DESIGNED BY

REV

MODEL DM516H (19V" 30kHz)
DISPLAY MONITOR
TITLE EXTERNAL VIEW

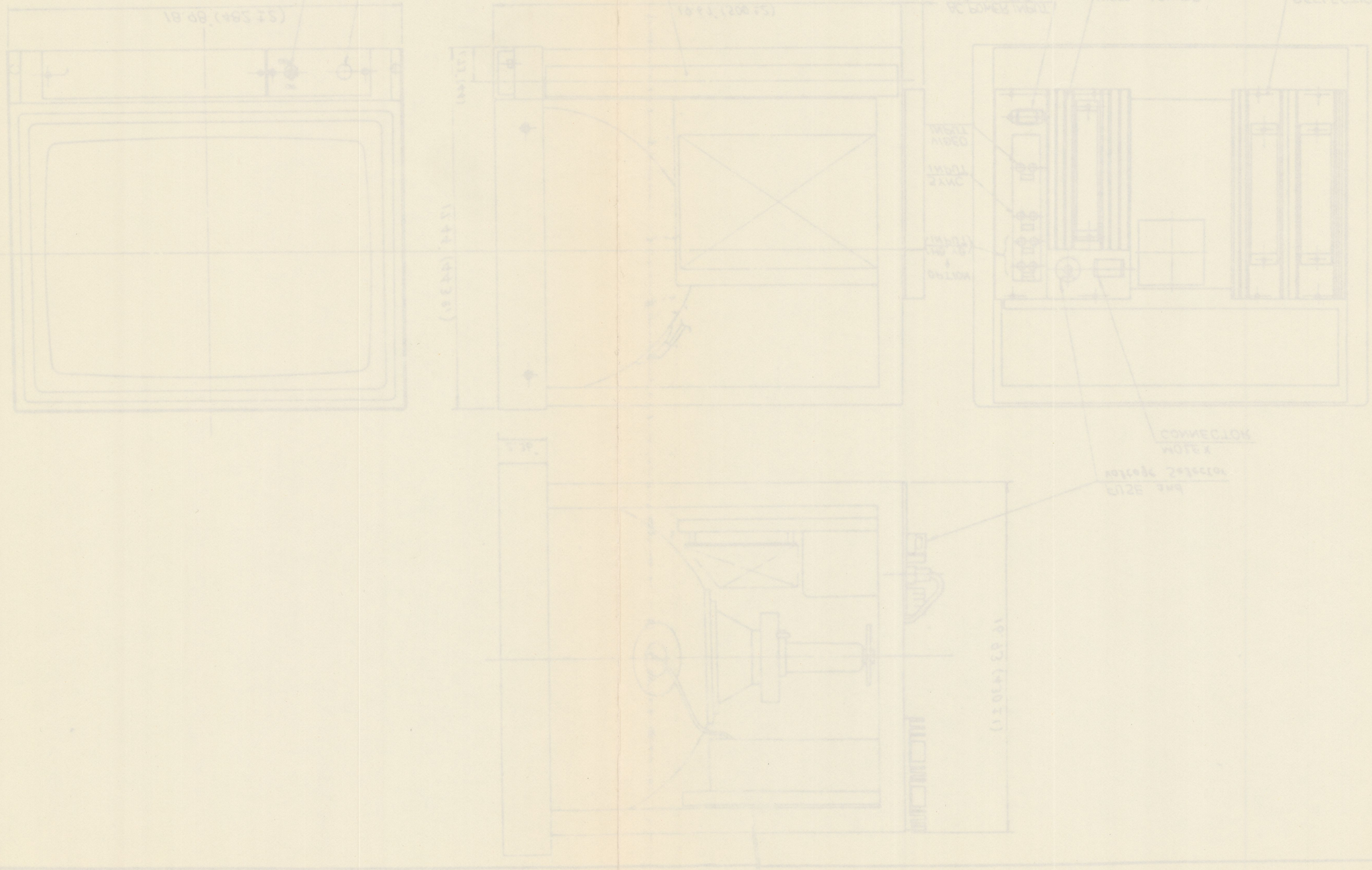
WORK No.

DWG. No.
K3-902123

IKEGAMI TSUSHINKI CO. LTD

8 48

A-3



Ikegami

Ikegami Tsushinki Co., Ltd.

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藤沢工場　〒251　藤沢市小塚４００
TEL.（藤沢）0466－25－１９１１（代）

水戸工場　〒311-02　茨城県那珂郡那珂町大字向山1230
TEL.（那珂）02929－5－３５１１（代）

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TEL.（宇都宮）0286－61－１１６１（代）

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福岡営業所　〒812　福岡市博多区博多駅前４－４－２３（第３岡部ビル）
TEL.（福岡）092－451－２５２１（代）

名古屋営業所　〒460　名古屋市中区東桜２－22－18（日興ビル）
TEL.（名古屋）052－931－２５４３（代）

仙台営業所　〒980　仙台市本町１－11－14（田沼ビル）
TEL.（仙台）0222－27－２０６６（代）

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